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The Bradshaw Lecture

ACUTE HÆMORRHAGIC PANCREATITIS:

WITH REMARKS ON THE ETIOLOGY OF
CHRONIC PANCREATITIS.

Delivered before the Royal College of Surgeons of England,

By SIR FREDERIC EVE, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE LONDON HOSPITAL AND TO THE
EVELINA HOSPITAL.

MR. PRESIDENT AND GENTLEMEN,—Ten years have passed since Mayo Robson, who had made this subject his own, discoursed in this theatre on pancreatitis. During that period so much light has been thrown on the subject by the experimental pathologist and the clinician that no excuse is required for reopening it.

ACUTE PANCREATITIS.

The macroscopic changes of acute hæmorrhagic pancreatitis are extremely characteristic and find no counterpart in any other organ.

Macroscopic Appearances.

In the earlier stages the pancreas is swollen, friable, and mottled red or brown to black with hæmorrhages, which lie chiefly near the surface or in the interstitial connective tissue. Areas of opaque white or yellow fat necrosis are observed in the peripancreatic fat and in that of the septa. They are also commonly met with in the fat of the omentum and mesentery. In some cases their distribution is very wide and fat necrosis may be seen in the subperitoneal fat of the abdominal wall, retroperitoneal adipose tissue, and even in the subpericardial and subpleural fat. A sanguineous or sero-sanguineous effusion is encountered in the lesser cavity of the peritoneum. This fluid is at first often sterile and contains products of pancreatic secretion, but it soon becomes infected; and in cases of some duration or even at an early stage in some very acute cases septic peritonitis exists.

If the patient survives varying degrees of necrotic and of suppurative changes are observed in and around the pancreas. Cases have been recorded in which the pancreas was necrosed and sequestered in its entirety. This may have occurred, but Dr. Turnbull informs me that the sequestered necrotic masses he has met with were composed of blocks of peripancreatic adipose tissue and not of the pancreas itself. In two cases the house surgeon assured him that the whole pancreas had sloughed through a laparotomy wound, but in both instances the pancreas was found in its normal position at the necropsy.

Suppuration of a diffuse character occurs mainly in the tissue around the pancreas; at times, in less acute cases, a localised abscess forms in the pancreas itself.

The original subdivision by Fitz of acute pancreatitis into hæmorrhagic, gangrenous, and suppurative, merely represents the outstanding pathological features of different cases exhibiting varying stages and degrees of the malady. The hæmorrhages are always associated with necroses, although one may be more conspicuous than the other; and they are both the primary result of the same morbid process. This, of course, does not imply that a primary hæmorrhage into the pancreas from changes in the blood or blood-vessels never

occurs; but such an apoplexy would be distinct from acute hæmorrhagic pancreatitis.

Histology.

The specimens I have studied confirm the description of the histological appearances given by Opie.¹ The chief features are: Areas of necrosis involving the parenchyma and also the interlobular septa; hæmorrhages most abundant about the periphery of the gland and around the necrotic areas; in addition, a diffuse infiltration of the septa, and, to a less extent, the gland substance with red corpuscles; there are also patches of fat necrosis involving the periglandular fat and the adipose tissue in the septa.

Of six specimens in the Pathological Institute of the London Hospital all but one showed definite evidence of inflammation, such as masses of polymorphonuclear leucocytes and areas of purulent infiltration around patches of necrosis, in the septa and beneath the peritoneum. The veins in some instances contained red or mixed thrombi, and occasionally the arteries were thrombosed.

In one case only out of six the leucocytic infiltration was very restricted, and limited to a few areas around necroses, although the patient died on the sixth day, while in all the others death occurred on or before the fourth day. Opie, among five specimens examined microscopically, observed one in which there was little or no inflammatory reaction.²

The Pancreatic Secretion and its Activation.

Some writers regard all the changes in acute pancreatitis as the result of the action of the pancreatic secretion on the gland. Chiari³ describes it as a tryptic autodigestion; others (Fitz, Körte) regard the disease as an acute hæmorrhagic inflammation leading to necrosis. Guleke recognises two forms of the disease—a necrotic form, which he calls "pancreatic necrosis"; and an inflammatory form, provoked by bacterial inflammation, which he names "acute pancreatitis." He considers that the two forms are not sharply defined.

I propose to show that both the digestive and the inflammatory hypotheses are in part true, in that the process in the initial stage is due to a septic or bacterial infection, which not only lowers the resistance of and damages the gland tissue, but also liberates trypsin. The action of this proteolytic ferment, together with that of the steapsin, give to the morbid process its characteristic changes.

The pancreatic juice presents this peculiarity, that when secreted its principal digestive agent is inert. The trypsin or proteolytic enzyme is secreted as an inactive substance—trypsinogen—and this is activated or transformed into trypsin by enterokinase, a substance said to be an enzyme, which is produced by the intestinal mucous membrane. The activation of the pancreatic secretion takes place after it is poured into the intestine, and therefore under normal circumstances the pancreas runs no danger of self-digestion.

According to Professor Starling, the juice obtained from the pancreatic duct by the use of secretin contains only trypsinogen. And Dr. H. M. Vernon, whose work on the pancreatic secretion is well known, writes to me that "probably under ordinary circumstances enterokinase is the only agent that can start the activation of trypsinogen; but both juice and extracts contain also another ferment in zymogen form, which, when set free, is much more

powerful than enterokinase. So long as this ferment is present as zymogen the juice will remain inactive, whether in the ducts or elsewhere, and it is only when it is rendered active by the slow action of free trypsin that it is able to exert its rapid activating influence on trypsinogen."

This new fact, just discovered by Dr. Vernon, would appear at first sight to have no bearing on the etiology of acute pancreatitis, for the trypsin is, under normal conditions, developed outside the pancreas by the action of the enterokinase of the succus entericus.

It must be taken in conjunction with an observation by Mellanby and Woolley,⁴ that bacillus coli and other intestinal flora are capable of activating pancreatic juice. These bacteria, according to Dr. Vernon, secrete powerful proteolytic ferments similar to trypsin, and he holds that the ferments secreted by them liberate an activator from the zymogen above referred to, and that it is this, and not enterokinase, which produces the effect observed.

To put the matter shortly, there is, on physiological grounds, good reason for believing that bacteria, and especially the bacillus coli, are capable of activating the pancreatic secretion independently of enterokinase. This, as we shall subsequently see, is entirely in accord with the results obtained by experiments on the artificial production of acute pancreatitis.

In addition to an amylolytic enzyme, the pancreatic juice also contains a fat-splitting enzyme, steapsin, capable of splitting neutral fats into fatty acids and glycerine, and it is this ferment which causes the fat necrosis. Bile increases the activity of steapsin two-fold (Neucke and Brems). This is corroborated by Mellanby and Woolley, and, as we shall see, is another fact having an important pathological bearing.

Experimental Pathology.

Opie was the first to show that there was a definite relation between cholelithiasis and acute pancreatitis. In a necropsy on a case of Halsted's he found a gall-stone impacted in and filling the diverticulum. In a subsequent case a small stone blocked the orifice of the diverticulum but did not fill it, so that a direct channel was formed between the biliary and the pancreatic ducts. (Fig. 1.) That

FIG. 1.



Diagram, after Opie, to show a calculus blocking the papilla, and permitting of a free channel between *d.c.*, the ductus choledochus, and *d.w.*, the duct of Wirsung.

bile had flowed into the pancreatic duct was demonstrated by the duct being stained bright green. Acting on this hint he injected bile into the pancreatic duct of dogs, and found that the injection of 5 c.c. caused death with hæmorrhagic inflammation and fat necrosis. This at first sight conclusive fact was only the starting point of a long series of experiments. So many have been made with various substances that time will only permit allusion to a few of them.

At the outset it may be remarked that many of these experiments, although resulting in a condition resembling acute hæmorrhagic pancreatitis, do not reproduce the conditions existing during

life. The pressure of the secretion of the bile and pancreatic juice is very low, even supposing, as Flexner suggests, that the bile pressure is accentuated by contraction of the gall-bladder; whereas in experiments the injection is made with a syringe, and considerable amounts, 5 or 10 c.c., were often used. That the amount injected has a relation to the result was shown by Opie and many others with bile. Death did not follow the use of smaller amounts than 5 c.c., and the changes produced in the organ were less widespread and severe. The pancreas is a very loose gland, the walls of the terminal ducts extremely thin, so that fluids under slight pressure would readily be extravasated into the gland tissue.

Many of the substances employed in experiments—zinc chloride, nitric and chromic acid—would act as irritants to the walls of the blood-vessels and gland cells, and produce hæmorrhages and necrosis. Flexner showed that the action of bile, which will dissolve red blood corpuscles, is due to the cytolytic property of the biliary salts. Olive oil, injected with positive results by Hess and others, owes its action to the liberation of fatty acids, which are extremely irritating to the tissues.

Other substances employed are not only irritants, but may also activate the pancreatic juice; for example, solutions of hydrochloric acid to imitate gastric juice. Dr. Vernon informs me that if pancreatic juice be partly neutralised by hydrochloric acid it spontaneously activates itself. Mellanby and Woolley also state that removal of the alkali of pancreatic juice by neutralisation with hydrochloric acid produces rapid activation. To the same category belong solutions of various species of bacteria injected by a number of experimenters. Inert substances, such as blood, blood serum, glycerine, paraffin, and agar-agar, gave a negative result.

Starling failed to induce any change in the gland by injecting enterokinase into its duct. He used succus entericus freed from micro-organisms by filtering through porcelain. Ligature of the duct of Wirsung causes no change beyond fibrosis, probably a fibrotic atrophy. By an exhaustive series of experiments on dogs, Polya⁵ conclusively proved that the pathological picture of acute hæmorrhagic pancreatitis can be reproduced by injecting solutions of active pancreatic extract and pancreatic juice.

Among 33 dogs injected, 19 died within 24 hours and 4 others within six days. In most of these animals punctiform hæmorrhages appeared on the surface of the pancreas immediately after the injection; these quickly extended over the greater part of the gland. The animals died in an apathetic condition with laboured and rapid respiration, and cramps were often observed. Necropsies showed effusion of blood-stained serum into the peritoneal cavity and widespread fat necrosis. The pancreas was greatly swollen and more or less infiltrated with blood. Microscopically there were varying degrees of parenchymatous digestion up to complete necrosis, in addition to hæmorrhages. Trypsin completely destroyed by heat gave negative results. The intensity of the lesions depended on the proteolytic activity of the trypsin, not on the quantity of solution injected; 2 or 3 c.c., or even 1 c.c., of an active solution caused death. The action of trypsin is a local one, producing œdema, hæmorrhages, and necrosis. Other experimenters found that the same changes ensue on

injecting solutions containing trypsin into various structures, as peritoneum, skin, subcutaneous tissue, and the tongue of frogs. Polya also injected intestinal contents, cultures of bacteria, and bile infected with bacteria. He arrived at the following conclusions. Typical pancreatic necrosis with hæmorrhages, fat necrosis, and a rapidly fatal course may be originated most certainly with strongly active trypsin solution, less constantly by duodenal contents and by bile mixed with bacteria, rarely by the contents of intestinal fistulæ and extract of intestinal mucous membrane, and only exceptionally by bacteria alone. His experiments with infected bile showed that in small quantity it gave rise to as extensive changes (that is, pancreatitis and fat necrosis) as a large quantity of normal bile. After the injection of cultures of bacteria or filtrates of cultures, suppurative interstitial inflammations without necrosis were for the most part observed, and in one-third of the cases the pancreas remained normal.

The inconclusive results obtained by the injections of bacteria probably, as Nordmann suggests, were due to the fact that he did not occlude the orifices of both pancreatic ducts before making the injection. (See Fig. 2.) Nevertheless, Polya concluded that bacteria are capable of activating the pancreatic secretion and that their activating power is increased by bile. With regard to the latter point, Professor Starling assures me that bile is not an activator; and it may be noted that Polya does not mention having tested the activating power of bacteria experimentally with juice from pancreatic fistulæ. Polya's experiments, however, demonstrate in a striking manner the master rôle played by auto-digestion in the production of acute hæmorrhagic pancreatitis, although the changes induced by the injection of trypsin differed from the majority of cases of acute pancreatitis in man, in that no leucocytic infiltration was observed.

As regards the possibility of duodenal secretion causing acute pancreatitis the evidence is all against the assumption that it regurgitates, except in very rare instances, into the pancreatic ducts. The papilla is provided with a sphincter. Hess failed to produce pancreatitis by putting a cannula in the papilla unless the duodenum was actually occluded on the distal side. And the device of inserting a silk thread from the duodenum through the papilla into the pancreatic duct also failed.

Experiments on Relation of Cholelithiasis and Acute Pancreatitis.

Nordmann¹⁶ instituted some further experiments with the object of explaining the relation between cholelithiasis and acute pancreatitis. He demonstrated that two factors are necessary for the production of acute hæmorrhagic pancreatitis: 1. There must be complete stasis of the pancreatic juice within the ducts. 2. Bacteria with or without admixture of bile must gain access to the stagnant secretion and multiply in it. To understand these experiments it must be explained that in dogs the pancreas has two ducts which anastomose freely in the gland. (Fig. 2.) The upper and smaller duct opens with the common bile duct into the ampulla as in man. The chief duct opens on the duodenum 3 to 5 cm. lower down. In order to produce any change as the result of injecting bacteria, it was necessary that both ducts should be occluded. If the lower duct were left open the result was negative. Nordmann closed both ducts by running a suture of silkworm gut around their orifices. Bile was thus allowed to regurgitate from the ampulla

into the pancreatic duct, yet no morbid change resulted, although the pancreatic secretion and the pancreatic duct were both stained with bile. But when, after closure of the pancreatic ducts, bacteria were injected into the gall-bladder, typical hæmorrhagic pancreatitis was produced.

The ampulla of dogs is often so small that a suture which closes the papilla also occludes the ampulla and shuts off the communication between the bile and pancreatic ducts. Nevertheless, even when this occurred the introduction of bacteria into the gall-bladder was followed by positive results. Evidently bacteria were able to wander

FIG. 2.

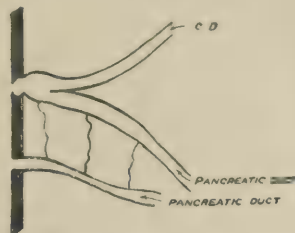


Diagram (after Nordmann) to show the arrangement of the pancreatic ducts in a dog. C.D., Ductus choledochus.

through the intrapancreatic portion of the bile-duct into the duct of Wirsung. Nordmann in his experiments injected into the gall-bladder 0.5 c.c. of a 24 hours' broth culture of mixed bacteria from the faeces of a dog. In other cases streptococci, staphylococci, or bacillus coli from man were used, but the results were not so generally positive.

The animals died in 48 to 65 hours, and the clinical course of the malady, together with the macroscopic and microscopic changes, corresponded with those of acute hæmorrhagic pancreatitis. In nearly half the cases there was a yellow colouring of the pancreatic duct. Collections of leucocytes were observed at the margins of the necrotic patches, but never in the middle of them. This corresponds with the description given above of the histological changes in acute pancreatitis in man. Wherever a hæmorrhage was found he always observed near it a necrosis. Nordmann can find no reason for believing that there is ever primarily a digestion of intact tissue, as he never observed pure aseptic necrotic patches in the gland tissue. He "believes that an alteration of the tissue of the gland, possibly of a chemical nature, resulted through the dammed-up pancreatic secretion, containing bacteria and sometimes mixed with bile, and that the typical necrosis takes place on the basis of these antecedent local tissue damages, which are found especially in the interstitial tissue, but also in the glandular lobules." He further thinks that "these tissue disturbances can possibly be produced by very different causes—namely, by injuries, by hæmorrhages, in consequence of angioneurotic disturbances, ischæmia, &c." This conclusion, although necessarily vague, as he does not take into account the activating properties of bacteria, is very near the mark.

The Infective Theory of Acute Pancreatitis.

To sum up, the experiments and facts brought forward warrant the assertion that acute hæmorrhagic pancreatitis is, in the majority of cases, due to a bacterial infection. The bacteria appear to have a double action; they lower the resistance of the tissues by their toxins and by their proteolytic ferments activate the pancreatic juice, which

in its turn digests the damaged tissues. Obviously the process is largely due to the action of the pancreatic juice, or it would not be so constantly associated with fat necrosis. It must also be remembered that in certain cases in which diffusion of pancreatic secretion takes place without activation fat necrosis only ensues. This is seen conspicuously in certain cases of injury.

The infective organism is most commonly a bacillus of the colon group. This, according to Egdahl,⁷ is usually found in acute pancreatitis. It is also that most frequently isolated from bile in infective conditions of the biliary passages. It may be noted that colon bacilli were found in the pancreas and blood of one of Mayo Robson's²¹ cases, in which a necropsy was performed three hours after an operation for acute pancreatitis. A specimen of acute pancreatitis, due to an obstruction by a round worm of the papilla and the ducts of Wirsung and Santorini, showed very large numbers of bacillus coli in the necrotic parts, especially in the septa, and in enormous numbers under the peritoneal surface. Purulent infiltration was in this case well marked. Dr. Twort, to whom the sections were shown, agreed that the bacilli were of the colon group. It would be difficult to devise experimentally conditions more favourable than those existing in this case for the production of acute pancreatitis, or which more completely fulfil Nordmann's premises.

It has often been assumed that the hæmorrhages are due to digestion of the walls of the blood-vessels. The researches of Rickes, Natus, and Knappe show that they are the result of stasis in the blood-vessels, and are of the nature of diapedesis hæmorrhages. Trypsin produces similar effects on the blood-vessel walls, as does a solution of salt of the same concentration as the pancreatic juice. The infective theory of the origin of acute pancreatitis explains peculiarities pointed out to me by Turnbull. In many necropsies in which there was no evidence of pancreatitis the terminal portion of the duct of Wirsung has been noticed to be stained by bile. Further, cancerous obstruction of the papilla of Vater may lead to extreme dilatation of the common bile-duct and duct of Wirsung without causing fat necrosis; therefore, neither obstruction to the pancreatic ducts nor entrance of bile into the pancreatic ducts do by themselves produce acute pancreatitis.

Lymphatic Origin of Pancreatitis.

It has been shown that a free communication exists between the lymphatics of the pancreas and those of the gall-bladder by means of the glands about the head of the pancreas, and Deaver⁸ has observed in pancreatitis striking evidence of inflammatory changes in these glands. Both he and Arnsperger have therefore developed the idea that infection may be conveyed from the gall-bladder to the pancreas by the lymphatics without any mechanical obstruction at the papilla. This appears to be excluded by an experiment of Nordmann. After closure of the pancreatic ducts he ligatured the common bile-duct distal to the gall-bladder and then injected bacteria into it. A cholangitis followed but no pancreatitis.

Etiology.

Let us now consider how the facts obtained in the laboratory fit in with those observed in disease.

Clinical experience bears out the conclusions that stasis and infection are the main elements in the causation of acute pancreatitis, and these are most commonly brought about by cholelithiasis.

Egdahl, in an analysis of 105 cases, found that in 44 (42 per cent.) the disease followed gall-stones or suspected gall-stones. But in only three of these cases was the stone in or near the ampulla. In 44 cases of Körte cholelithiasis existed in 21 (47 per cent.), and in 16 consecutive cases analysed by Dietrich⁹ cholelithiasis was found at the operation or necropsy in 8. Calculi occupied the common bile-duct only twice, and in both of these they were small and not impacted. Dietrich states that in his cases gall-stones were certainly excluded only three times (18·75 per cent.).

At the London Hospital during the five years 1907-12 there were 11 necropsies on cases of acute hæmorrhagic pancreatitis. Gall-stones were present seven times (63·6 per cent.), and a round worm (in a case of Mr. Rigby) occluded both pancreatic ducts in an eighth. In only one of these cases did the stone occupy the ampulla. In the remaining 6 cases the calculi were in the gall-bladder and were invariably multiple and small. In 2 cases there was a duodenal ulcer, and in 1 of these a constriction of the common bile-duct with dilatation of the pancreatic duct was noticed; therefore gall-stones or obstruction at the papilla existed in nearly 82 per cent. of the cases. The duct of Wirsung showed evidence of stasis of secretion, or of infection in 7 cases out of the 11. It may be observed that a true estimate of the causes at work is more likely to be obtained from necropsies than from operations performed under conditions of grave illness, when the condition of the patient may preclude a careful examination of the bile passages.

The exact mechanism by which the pancreas is infected evidently varies. The figures quoted above show that the direct regurgitation of infected bile into the duct of Wirsung, owing to the impaction of a small calculus in the ampulla, occurs only in a small proportion of cases—about 20 per cent. The requisite anatomical conditions are shown in Fig. 1, and exist only in 20 per cent. of subjects. According to the measurements by Opie of the diverticulum and of the orifice of the papilla, a stone sufficiently large to become impacted in the papilla would in 70 per cent. of cases also completely fill the diverticulum, so that no communication between the two ducts would be possible. This leaves 30 per cent. of cases, and from these must be deducted 10 per cent. in which the duct of

FIG. 3.

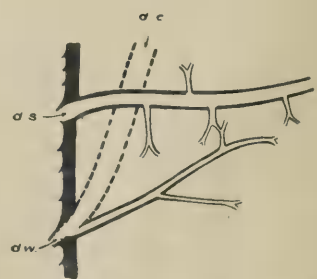


Diagram after Opie. d.s., Duct of Santorini; d.w., Duct of Wirsung; d.c., Ductus choledochus.

Santorini is the larger (Fig. 3), and opens at the lesser papilla independently of the bile-duct.

The experiments of Nordmann having demonstrated that bacteria can wander from the common bile-duct into the duct of Wirsung through their contiguous walls, the complete blocking of the diverticulum by a calculus would be pathologically

effective to produce the disease without regurgitation of bile. Acute pancreatitis may presumably follow if the calculus remains sufficiently long in the diverticulum to cause stasis and infection of the pancreatic juice. This appears to have occurred in some cases of pancreatitis where a small stone has been found post mortem in the duodenum close to the papilla (Opie, also Balch and Smith). In this connexion the frequency with which small stones are found in the gall-bladder is significant, as shown in the London Hospital necropsies. The clinical histories of such cases tell of repeated attacks of biliary colic of short duration, coincident with the passage of small calculi down the common duct. Even when the diverticulum is absent and the two ducts open by separate orifices upon the summit of the bile papilla (Fig. 4) a calculus impacted in the

FIG. 4.



Diagram after Opie. Ductus choledochus and duct of Wirsung open by separate orifices.

termination of the common bile-duct might also occlude the pancreatic duct, as indicated in Fig. 5.

FIG. 5.

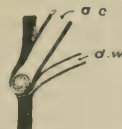


Diagram to show how a calculus lodged at the orifice of the ductus choledochus may obstruct the duct of Wirsung when the two ducts open by separate orifices.

For example, in New's case (quoted by Egdahl) gall-stones were present, but the duct of Wirsung had a separate opening.

It has been suggested that the passage of a stone may cause obstruction at the papilla from congestion. It is also probable that such a swelling and congestion may arise from a cholangitis due to the passage of infected bile. In this way a cholecystitis without cholelithiasis may bring about acute pancreatitis; and it is quite clear that chronic pancreatitis, the causes of which are allied to those of the acute variety, is frequently due to cholecystitis without calculi. Balch and Smith¹⁰ record a case of acute pancreatitis in which the ampulla was plugged with inspissated mucus.

Egdahl believes that, next to cholelithiasis, gastro-intestinal diseases are the most common cause of acute pancreatitis. He thinks that retrojection of bile may be caused by intestinal disorders closing the papilla. As we have already seen, the retrojection of bile is not essential provided there is closure of the papilla with infection of the bile. An ascending infection of the biliary ducts would be likely to occur in gastro-duodenitis; 30 per cent of Egdahl's cases belonged to this group, and 17 out of 32 gave a history of alcoholism. Three of his cases were associated respectively with duodenal perforation, gastric ulcer, and poisoning by oxalic acid. In two of the 11 London Hospital necropsies a duodenal ulcer was present.

Acute pancreatitis may occasionally be due to

regurgitation of duodenal secretion. This is more likely to occur through the orifice of the duct of Santorini, which is not provided with a sphincter. Opie quotes (p. 153) a striking case of a man in whom pancreatitis was preceded by alcoholic gastritis and vomiting. The duct of Santorini was the principal outlet of the gland, as in Fig. 3. Almost the entire gland was the seat of hæmorrhagic inflammation, and the part about the small duct of Wirsung was apparently the least changed part of the organ. The orifice of the duct of Santorini readily admitted a probe about 2 mm. in diameter. In another case (Bassett's) the lesion was limited to a small area in the head of the gland, drained by a small duct of Santorini. In two of Egdahl's cases acute pancreatitis was associated with enteric fever and in 14 with mumps. The tendency of the typhoid bacillus to infect the biliary tract probably explains the association of acute pancreatitis with this disease. I operated successfully on a case of abscess of the head of the pancreas during convalescence from enteric fever.

Sex and Age.

A collection of 295 cases from the literature shows that 63 per cent. of the cases are males and 37 per cent. females; the males therefore outnumber the females by nearly one-third. Deaver states that the number of males is twice as great as the females, but this is evidently an over-estimate. The point is of importance, as it involves the relation of cholelithiasis to acute pancreatitis, the former being much commoner in women. The preponderance of males in acute pancreatitis is probably due to the fact that gastro-duodenal catarrh—especially the alcoholic form—and duodenal ulcer are more frequent among them. The larger number of cases occur between the ages of 45 and 65. The addition of Dietrich's cases to those of the London Hospital shows that over 53 per cent. occurred during this period. In Körte's cases the greater number had reached the fourth or fifth decade. As an unusual circumstance it may be mentioned that 8 (30 per cent.) of the London Hospital patients were in the third decade.

CHRONIC PANCREATITIS.

Although we are mainly concerned with the subject of acute pancreatitis, it will not be out of place if we discuss briefly the pathology and etiology of chronic pancreatitis in the light of our review of the pathology of the former.

The relation of these two affections is far closer than would appear at first sight from a study of their morbid anatomy. Both are mainly the result of infection of the biliary and pancreatic ducts. Although they usually originate independently, yet a subacute pancreatitis may prove the starting-point of the chronic variety; and, on the contrary, the acute may be engrafted on a gland long affected with sclerotic changes. A microscopic specimen from the Pathological Institute of the London Hospital illustrates the close relation as regards causation between acute and chronic pancreatitis. It demonstrates an acute pancreatitis supervening on a chronic. The patient, a woman, aged 49, had suffered for six months from biliary colic, and was jaundiced after the last attack. At an operation two large stones were found in the cystic duct, some smaller ones in the gall-bladder, and some gritty matter in the common bile duct was pushed down by a probe which freely entered the duodenum. The gall-bladder was much thickened and was removed; the

dilated common duct was drained. The patient became weaker, jaundice appeared with vomiting, and she died on the twelfth day after the operation. At the necropsy two calculi, which had probably receded during the operation into the hepatic duct, were found in the common bile-duct, and there were acute hæmorrhagic inflammation and fatty infiltration of the pancreas. On microscopic examination the ducts showed marked mucous catarrh. In parts were extensive hæmorrhages with destruction of the parenchyma from digestion—in fact, acute hæmorrhagic pancreatitis. In addition there was considerable interlobular and interacinar fibrosis with infiltration of the fibrous tissue with lymphocytes, neutrophile leucocytes, and some eosinophile leucocytes. In this case the occurrence of jaundice after the operation suggests that obstruction of the common bile-duct took place with acute infection of a pancreas already damaged by chronic infection due to calculi in the common bile-duct.

The work of numerous experimenters proves that an acute pancreatic lesion which does not end fatally may terminate in chronic pancreatitis or in sclerosis. To quote only one set of experiments, Whipple, Chaffee, and Fisher¹¹ found that the injection of 3 to 5 c.c. of bile into the pancreatic duct produced primarily an acute hæmorrhagic lesion and secondarily a chronic fibrous pancreatitis resulting from the healing of the acute inflammatory process. The pathological changes were controlled by exploratory laparotomies made respectively three and five weeks after the injection, at each of which a portion of pancreas was removed for microscopic examination, and some time subsequently a necropsy was made.

Nordmann, whose experiments have already been detailed, thought that in certain circumstances an inflammatory œdema was produced, which cleared up with complete recovery, but when cell infiltration was abundant the inflammatory changes gave rise to sclerosis; in other words, to chronic pancreatitis. I have observed clinically such a clearing up of an inflammatory œdema of the head of the pancreas. In the course of an operation for removal of a calculus from the common bile duct in a woman of 72 I found the head of the pancreas greatly swollen and softer than usual. A drainage tube was placed in the common bile duct. The patient died two weeks later from purulent bronchiectasis and pneumonia. Dr. Bartlett, who made a special examination of the pancreas for me, could find no microscopic change in the head of the gland. The gall-bladder and ducts contained mucopus, and bile obtained at the operation gave cultures of colon bacilli.

Etiology.

Like acute pancreatitis, the chronic form is closely related to cholelithiasis, especially to stones in the common duct, which would cause intermittent stasis of biliary and pancreatic secretion, and be associated with biliary infection. The often-quoted figures of the Mayos give 2611 operations on the gall-bladder and bile tract, with involvement of the pancreas in 200 cases (7.6 per cent.), and in 325 operations on the common and hepatic ducts the pancreas was affected in 22 per cent. Mayo Robson estimated that chronic pancreatitis existed in 60 per cent. of cases of calculi in the common bile duct.

Apart from the cases of chronic pancreatitis associated with cirrhosis of the liver, which I do not feel competent to discuss, a considerable number

are unaccompanied by gall-stone disease. In many of these, however, cholecystitis exists, for in 73 cases of chronic pancreatitis in Deaver's¹² practice cholelithiasis existed in 35, and in 38 no calculi were present at the time of the operation. But of the non-calculus group 12 had demonstrable changes in the gall-bladder, or, in other words, cholecystitis was present. The results of the operation of draining the gall-bladder for chronic pancreatitis show that in a definite proportion of cases the operation fails on account of a chronic form of cholecystitis which is not cured by drainage alone, although complete relief is obtained by cholecystenterostomy (W. J. Mayo²² and Guerry²³).

Morbid conditions of the duodenum play as important a rôle in the causation of chronic pancreatitis as in the acute form; and it has already been pointed out that gastro-duodenitis and ulcers favour the occurrence of an ascending infection of the biliary ducts, and that intermittent stasis may result thereby from congestion at the papilla.

Cancer of the head of the pancreas is in rare instances a cause of chronic pancreatitis. This is more readily understood when it is stated that Turnbull's records at the London Hospital show that practically all cases of so-called carcinoma of the head of the pancreas originate in the biliary or pancreatic ducts, and therefore from an early stage must cause stasis of the secretions in these ducts. Certain cases of chronic pancreatitis coincident with gastric and duodenal ulcers are evidently due to direct microbic infection, either by extension from the base of the ulcer when it is adherent to the pancreas, or perhaps in some instances by the lymphatics.

Cambridge¹³ gives the following summary of the causes of chronic pancreatitis from his notes of 414 cases. Fifty-one per cent. were secondary to some morbid condition of the digestive tract; 37 per cent. were associated with diseases of the biliary apparatus, chiefly gall-stones; 8 per cent. were due to deposits of malignant disease from a primary deposit in some other organ; and 4 per cent. were probably dependent upon disease of the circulatory system. The proportion of cases due to diseases of the biliary apparatus is probably too low. The experiences of surgeons would probably show a larger number of cases dependent on this cause, many examples of chronic pancreatitis being discovered at operations for the relief of obvious biliary disease.

SYMPTOMS OF ACUTE PANCREATITIS.

In order to avoid the not uncommon error of repeating stereotyped descriptions of other authors, I have carefully analysed 24 consecutive cases at the London Hospital of which the notes were complete, together with the abstracts of 16 cases given as an appendix to Dietrich's paper, making a total of 40 cases.

Premonitory Symptoms.

Over one-half had premonitory symptoms of varying intensity. These consisted of attacks of pain in the upper abdomen, or occasionally over the abdomen generally (16 per cent.). As regards the cause of these attacks of pain, the symptoms and other indications lead to the conclusion that some of them were due to attacks of subacute pancreatitis. For example, in one London Hospital case several white spots, the remains of old fat necrosis, were observed in the subperitoneal fat at an operation for acute pancreatitis. This patient

had suffered with attacks of pain for three years prior to the operation.

Körte observed fat necrosis, although its significance was not recognised, in a patient operated on for gall-stones in 1895. At a second operation in 1896 for a stone in the common duct no signs of the former pancreatitis existed. Further, Körte saw four cases and Brentano three which were considered as examples of healed pancreatitis. The disappearance of fat necrosis in a short period has frequently been noted in experiments on animals. Polya observed after the injection of active trypsin into the pancreatic duct that in those animals in which a relaparotomy was done for inspection the areas of fat necrosis had disappeared between the laparotomy and their death. An animal which exhibited after laparotomy typical evidences of hæmorrhage and fat necrosis showed on post-mortem examination, 22 days later, that all these changes had disappeared. In animals which lived for a week after the experiment fat necrosis was never found.

The premonitory attacks of pain were in a like proportion of cases (16 per cent.) referred to the right side of the upper abdomen. In many instances the pain resembled and might be referred to cholelithiasis, and in a few to duodenal ulcer. But a fair proportion of patients shown subsequently to have gall-stone disease complained of no previous symptoms.

A few cases gave a history of indigestion and flatulence.

Symptoms.

These accord with the symptoms of the group of acute abdominal crises, and closely resemble those of perforation of gastric and duodenal ulcer, of the gall-bladder, or the appendix. Many cases have been mistaken for acute intestinal obstruction. The onset is sudden, with very severe pain in the epigastrium, persistent vomiting, usually constipation, tenderness, fulness and resistance in the upper abdomen, and gradually increasing distension; the pulse is rapid and weak; the temperature lower than the pulse-rate, and not infrequently subnormal with collapse.

Körte, whose experience is probably unrivalled, says that the one symptom which gives the most probable insight into the condition is tenderness across the epigastrium, and resistance over the pancreas. He adds that the most distinctive sign is epigastric peritonitis, with subsequent swelling in the left lumbar region. This was present in 18 of his cases in which a diagnosis was possible.

There being no pathognomonic sign the diagnosis is admittedly difficult and uncertain, yet Dietrich states that in 16 cases admitted during the last five years to the Hamburg-Eppendorf Hospital the nature of the malady was detected in the last 10. Obviously the difficulty must be greatest in very acute or in advanced cases, for in these there will be general abdominal tenderness and distension—in fact, the signs of general peritonitis. An analysis of the 40 cases mentioned above will indicate the frequency of the prominent symptoms. Vomiting was almost a constant symptom (80 per cent.), and was often severe and incessant. Constipation existed in 25 per cent., and was only marked in 5 cases. Diarrhœa was present in 3 cases, but in one of these the symptoms had existed 14 days.

Pain was almost constant, and in 50 per cent. was situated in the epigastrium or upper abdomen. In the other cases it was localised in the right hypochondrium, the right side of abdomen, or right iliac fossa; in others on the left side or left iliac

fossa. Tenderness had much the same distribution as the pain. Distension existed in half the cases. The most important fact resulting from this review of cases is that a swelling was only observed in 7 (17·5 per cent.)—twice in the right hypochondrium (in one of these being a distended gall-bladder), thrice on the right side of the abdomen or to the right of the umbilicus, once on the left side of the abdomen, and once below the umbilicus. It may be observed that when pus forms around the pancreas it develops a retroperitoneal collection and presents in the left flank, or passes through the gastro-hepatic omentum and forms a left sub-phrenic abscess. Occasionally, as in a London Hospital case, it tracks retroperitoneally to the appendix region; a collection may also occur in the right kidney pouch, as it did in this case. Shivering was noted only twice. Jaundice was present in 5 cases (12·5 per cent.). Cyanosis, sometimes spoken of as a characteristic sign, was only present twice; one was an acute case of 24 hours' duration, while in the other the symptoms had lasted 14 days. Glycosuria was once noted, a trace of sugar being found in one of Dietrich's 16 cases. It existed in 8 of Körte's 44 cases. One patient of Körte developed diabetes one and a half years after extensive necrosis of the pancreas, and died eight years subsequent to the operations.

The discovery of fat necrosis during the operation is often the first definite indication of the nature of the malady. Its presence is very constant, but it was absent in 2 of Dietrich's 16 cases, one of these being a case operated on after 48 hours, and subsequently subjected to a post-mortem examination. The other, also an acute case of hæmorrhagic pancreatitis, recovered after an operation, performed 24 hours after the onset. Fat necrosis was stated to be absent in 4 of 27 consecutive London Hospital cases, and all were subacute. This sign was therefore absent only in 14 per cent. of cases.

Toxic Symptoms.

The general condition of patients with acute pancreatitis is indicative of an acute toxæmia.

Speese, Sailer, and Torrey performed experiments on dogs¹⁴ to ascertain if the toxæmia was due to the presence of trypsin in the blood serum. Pancreatitis was induced by injecting 20 c.c. of oil. As a result they concluded that there is no reason to believe that the toxæmia of acute pancreatitis is caused by any absorption of the external secretion of the pancreas. But they succeeded in separating from the serum a substance lethal to guinea-pigs. They felt justified in saying that in acute pancreatitis the blood content in globulin is greatly increased, and that either the globulin itself, or substances adherent to it, constitute the toxic element causing death in this disease.

Cambridge's Reaction.

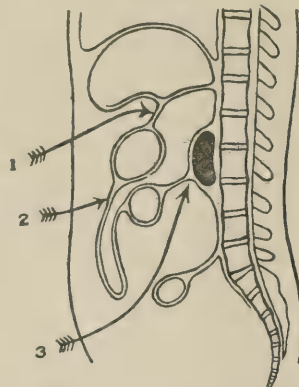
Both clinicians and experimentalists have arrived at the conclusion that this reaction is of no definite value in the diagnosis of acute pancreatitis. Körte found it negative in 7 out of 8 cases examined. Both Deaver, Ochsner, and Dietrich state that it was of no assistance. Whipple, Chaffee, and Fisher¹⁵ tested it in acute pancreatitis of dogs induced experimentally. They concluded that this test was of little value in establishing a diagnosis of acute pancreatitis in dogs. If the test is negative it is pretty strong evidence against an acute pancreatitis; but a positive Cambridge test is not infrequent in

normal men and dogs. It is almost constantly present in chloroform poisoning in dogs, and may be present in cases of pneumonia, or in any condition where there are active cell destruction and autolysis. They add: "The method is open to various errors, and too much depends on the personal equation, particularly in the interpretation of the various crystals."

TREATMENT.

There exists such a complete agreement as to the treatment of acute pancreatitis that this portion of the subject may be briefly dealt with. Operation is indicated at the earliest moment that the disease is definitely suspected. Collapse should not be considered a legitimate cause of delay. Probably in the majority of cases this condition will only become deeper if operation be postponed; and our resources for combating shock have been considerably augmented during the last few years. A median or right rectus incision is the direct channel for settling the diagnosis and exposing the pancreas. The biliary passages also require examination. There are three routes by which the pancreas may be exposed and the lesser cavity of the peritoneum opened up (see Fig. 6, after Mayo Robson).

FIG. 6.



The peritoneal folds in relation to the pancreas. The arrows indicate three of the approaches to the gland. From "A System of Operative Surgery," edited by F. F. Burghard.

1. Above the stomach, through the lesser or gastro-hepatic omentum. This can only be conveniently employed when gastropexy exists.

2. Below the stomach through the upper part of the gastro-colic omentum. This is the method of choice.

3. Through the transverse mesocolon. This is inadvisable as hæmorrhage may ensue owing to wounding of large vessels (see Dietrich, Case 8). The general peritoneal cavity is also less readily shut off.

4. In cases of localised abscess around or within the head of the pancreas, this may be exposed posteriorly by mobilising the duodenum, or anteriorly by cutting through the peritoneum passing over the pancreas from the duodenum.

5. The tail of the pancreas may be reached by a transverse lumbar incision in the left costo-vertebral angle. This route should be adopted when the existence of a retroperitoneal collection of pus. After exposure of the gland through an anterior incision it may also be used for the purpose of obtaining efficient drainage in cases of extensive necrosis, and it should never be omitted if there be a left lumbar swelling. In those cases where a left

costo-vertebral incision is primarily employed for a swelling in the lumbar region the anterior incision should not usually be dispensed with, for, as W. J. Mayo points out,¹⁰ the head of the pancreas is most often involved. The justice of this advice appears evident from Körte's cases, which gave a mortality of 33 per cent. for those treated by abdominal incisions and nearly 70 per cent. for cases in which a lumbar incision was adopted. The latter, however, were often cases operated on in the later stages. They included also those operated on by the transpleural method.

6. Finally, a left subphrenic collection of pus should be opened either through an epigastric incision or by the transpleural route.

The procedure generally followed after opening the abdomen is to pack off the lower part of the peritoneal cavity with gauze, open the lesser cavity of the peritoneum through the gastro-colic omentum, and mop up any collection of sero-sanguineous or sero-purulent fluid within it. The covering of the pancreas is divided, and blunt scarification made along its whole length, or over the part affected, sometimes only the head. Bleeding is stopped by under-running vessels with catgut, or a gauze plug is fixed in position with catgut sutures. A drainage-tube is left in. If there is a quantity of fluid in the peritoneum a drain should be inserted above the pubes.

In those cases where a collection of pus exists, this should be drawn off by aspiration before the cavity is opened. A careful examination of the biliary apparatus is an essential part of the operation. Cholecystotomy with drainage should be performed for calculi in the gall-bladder or for cholecystitis; and choledochotomy with drainage should be carried out for calculi in the common duct, provided that the life of the patient is not imperilled by a prolongation of the operation. Cholecystectomy, if requisite, must be postponed till a later period.

RESULTS AND PROGNOSIS.

The mortality following operations for acute pancreatitis is still 40 to 60 per cent. But Ebner reports that of 20 cases not operated on only two recovered. In Dietrich's collection of 161 cases of various operators up to 1913, 98 died—a mortality of 61 per cent. These cases included 103 collected from literature by Körte in 1911. Körte's 34 personal cases, in which the pancreas was exposed, gave a mortality of 47 per cent. (18 recovered and 16 died).

During the five years 1908 to 1912 inclusive, 17 cases were operated on at the London Hospital with 11 deaths, a mortality of 64·9 per cent., while the series of 17 cases during the same period reported on by Dietrich gave a mortality of 77 per cent. The prognosis depends mainly on the acuteness of the malady and the period when operation is performed. Ultra-acute cases usually die with collapse in 24 to 72 hours, and extensive necrosis of the pancreas may be found as early as the third or fourth day.

Among the 6 London Hospital cases that recovered 4 were definitely subacute, and one of them was not operated on till the fourteenth day of his illness; in this case and another there was no fat necrosis. But in the two remaining cases, operated on respectively on the second and fifth days, there was necrosis with sloughing.

Körte's cases give a valuable indication of the effect of their duration on the prognosis. The

mortality in cases operated on in the first two weeks was 31 per cent.; of those operated on during the first three or four weeks 50 per cent.; of those operated on in the fifth and sixth weeks all died. In all cases operated on after the fourth week necrosis of the pancreas and pus were found. The prognosis in circumscribed abscess of the pancreas is favourable. Mayo Robson operated on 7 cases, with recovery in 6, though 2 of them succumbed later. The patient may survive the operation and die subsequently from suppuration, chronic toxæmia, and exhaustion. One of my own patients died nine weeks after the operation, although a counter opening was made for drainage in the left loin, in addition to an anterior incision. At death very offensive pus and necrotic material were still discharging from the posterior opening. *Fistulæ* exuding pancreatic secretion may remain for some time, but they usually close spontaneously. Another patient on whom I operated for pancreatitis occurring during convalescence from enteric fever still has a fistula some years after the operation. Hæmorrhage is not an uncommon complication. It occurred in 7 of Körte's cases (20·6 per cent.). The hæmorrhage always took place during the period of necrosis and pus formation, and was from the large arteries along the upper border of the pancreas—four times from the splenic artery itself. All Körte's patients died except one, who was saved by plugging the wound with gauze.

TRAUMA.

The results of injury to the pancreas are of particular interest on account of their bearing on the nature of acute pancreatitis and pancreatic necrosis. These injuries are usually produced by a blow on the epigastrium from a kick, or a blow from a buffer, shaft, &c., or from a wheel passing over the abdomen. Some are the result of stabs or gunshot wounds. Not infrequently other abdominal organs are also implicated. The symptoms for the most part resemble those of acute or subacute pancreatitis.

A study of the clinical history of uncomplicated cases appears to me to justify their division into three groups: 1. Cases with fat necrosis and sero-sanguineous or serous effusion into the lesser sac. These, as a rule, recover after laparotomy. 2. Cases with necrosis of the pancreas itself, hæmorrhages, fat necrosis, and, in some instances, peritonitis. These are often fatal even after a timely laparotomy. 3. Cases of injury followed by the formation of a pseudo-cyst.

The pancreatic juice within the normal gland possesses no active proteolytic ferment, therefore injuries causing extravasation of the juice might be expected to produce only fat necrosis. This expectation is borne out by the cases in Group 1 and by experimental injuries. Opie found that fat necrosis followed division between two ligatures of the pancreatic ducts of cats. The pancreatic tissue was evidently opened up in separating the pancreas from the duodenum, otherwise there could have been no escape of juice, for it may be remembered that simple aseptic ligature of the ducts produces only fibrotic atrophy. The extent of the distribution of the fat necrosis was proportionate to the length of life of the animal. The peritoneal exudate was sterile. Opie also produced fat necrosis by transplanting the duodenal end of the pancreatic duct into the subcutaneous tissue of the abdomen. As examples of Group 1 the following cases may be quoted:—

The wheel of a cart passed over the abdomen of a boy aged 6. Laparotomy ten days after the injury showed

abundant localised serous effusion and fat necrosis, with a visible lesion of the pancreas. The fluid was sterile. Recovery.¹⁷ Hagedorn observed two similar cases operated on respectively 24 hours and 17 days after the injury. Both recovered. In Hahn's case laparotomy revealed disseminated fat necrosis six months after a fall from a wagon. Recovery followed.

In Group 2 necrosis of the pancreas results either from destruction of its vitality or from interference with the circulation, owing to the severity of the injury; or, again, as the result of primary or secondary infection of the injured tissue.

Selberg,¹⁸ in a patient who died on the twentieth day after the kick of a horse, found microscopic evidence of necrosis of the entire pancreas.

In Opie's case of stab wound the patient died of streptococcal peritonitis owing to a penetrating wound of the stomach, which was closed by operation. Around a puncture only of the pancreas there were found a hæmorrhagic area with hyaline necrosis of the parenchyma and foci of fat necrosis, apparently due to the septic wound of the pancreas.

Levin,¹⁹ as the result of numerous experiments, found that crushing of a part of the pancreas with artery forceps, or section of the gland at its middle between double ligatures, produced no effect. But if the vitality of the gland was seriously interfered with as by crushing and subsequent ligature of the main vessels, or by the application of six or seven ligatures around it, the animals died with "acute pancreatitis" and sometimes fat necrosis. Levin remarks that "peritoneal infection, which frequently occurs in these experiments, may be due to extraneous infection or to infection from the duodenum through the pancreatic duct."

On analysing Levin's experiments I find that nearly 50 per cent. of these very severe lesions of the pancreas were not fatal, and the necropsies showed only interstitial pancreatitis. Another element—almost certainly primary or secondary infection—must therefore have come into play and determined the fatal issue in the remaining cases. This appears the more likely in view of our present knowledge that bacteria are capable of activating the pancreatic juice.

Treatment.

Exigencies of space permit me only to deal very briefly with this portion of my subject. The indication for operation is quite as definite in the case of serious injuries of the pancreas, whether from subcutaneous trauma or gunshot and stab wounds, as in acute pancreatitis. The diagnosis must necessarily be uncertain, especially as other organs may be injured. But this is of little importance in consideration of the fact that in most severe abdominal lesions laparotomy will be indicated. Von Mikulicz, in an admirable article on this subject,²⁰ specifies increasing anæmia, the physical signs of blood in the peritoneum, peritoneal irritation, and especially a steady accentuation of symptoms, as the indications of a severe injury to the pancreas.

After opening the abdomen hæmorrhage from the pancreas must be stopped by deep sutures or by the use of the tampon, the injured area being packed off with gauze and drained. A break in the continuity of the organ may permit of a closure with deep sutures. A careful search for wounds of other viscera is necessary in all cases. The peritoneal cavity should be washed out with normal salt solution, for in the majority of cases pancreatic secretion will have escaped into it. The pancreatic juice, even when aseptic, is said to be highly toxic and to lower the resistance of the peritoneum to micro-organisms.

Von Mikulicz collected 45 cases of pancreatic injury; 21 were penetrating wounds, and 24 subcutaneous wounds from blunt force. Of the penetrating variety, 12 were gunshot and 9 stab wounds. Five of the gunshot wounds were

operated on, with 2 deaths. The 7 that were not operated on died. The 9 stab wounds were all operated on with only 1 fatality. These favourable results were due to the fact that the pancreatic injury was really a prolapse in 7 cases; and in some of these only a minor lesion of the prolapsed portion was present. Of the 24 subcutaneous injuries, 13 were not operated upon, and all died. Eleven were submitted to operation and 7 recovered. The operations consisted in exposing the injured pancreas and in drainage.

In conclusion, I desire to express my indebtedness to Dr. Turnbull for much assistance and for generously placing the admirable records and the microscopic specimens of the Pathological Institute of the London Hospital at my disposal; my sincere thanks are also due to Professor Starling and Dr. H. M. Vernon for valuable information, and to Mr. E. C. Lindsay for making abstracts of hospital notes and records.

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SOME EXPERIENCES OF SHELL WOUNDS IN THE PRESENT WAR.

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It takes but little experience of shrapnel and other shell wounds, which when they get to hospital are almost always infected, to realise that the best thing to do is to leave them alone—that all aggressive surgery is a mistake, that foreign bodies *per se* do no harm, and that the laying open of fresh tissue areas is to be avoided. Amputations are unwise, simple removal of any nearly dissociated parts being sufficient, even if ends of bone are left protruding. If a previous formal amputation has been performed there is almost always free suppuration and flap retraction, with the necessity for reamputation later.

The best treatment is the boracic fomentation assiduously and properly applied; the lint should be wrung as dry as possible out of really boiling water, put on in at least two layers amply covering the wound and adjacent parts, well overlapped in its turn by the mackintosh, fixed so as to avoid displacement and permit of easy changing, and changed as often as every two hours in badly infected cases. There is no particular virtue in the boracic acid, but the pink colour of the lint emphasises its special use.

Where there is a wide wound, locally very foul, but with no spreading or general infection antiseptic sawdust¹ is a good dressing. When leaning over the bandage and smelling there is not the offensive odour of other dressings, but only a fragrant

smell. The sawdust is best applied over a single layer of sterile gauze laid across the wound. The corners of the gauze are then brought over the sawdust. The dressing should be changed at least twice daily. "*Pinus sylvestris medicatrix*" is an impressive name for the soldier. The use of gauze plugs, sterile or medicated, is wrong; they become intensely foul, and cork up discharge. Drainage-tubes are only very occasionally necessary.

The employment of congestive treatment other than the fomentations—Bier's bandage or Bier's cup—should follow the usual principles of dealing with infected wounds. A high value is placed nowadays on peroxide of hydrogen, but I cannot satisfy myself that it has any special usefulness in these cases. It is very difficult to estimate the value of medications applied to wounds in removing infection and hastening repair, for cleansing and healing usually take place rapidly under congestion and natural processes.

Granulating and mildly infected wounds do well under sterile gauze wrung out of warm "parabolic" applied twice daily. Sterile wounds require a dab of tincture of iodine and a pad of sterile gauze daily or less often. Occasionally an obvious abscess requires opening, an ill-draining sinus enlarging, or a cellulitis incising. In the absence of constitutional disturbance it is well to wait for definite evidence of these conditions. Doubtful spots should not be incised if the temperature is normal.

The best procedure in ward dressings is as follows. The "dresser" wears rubber gloves throughout, the lotion is warm "parabolic" 1 in 40, parabolic being one of the British equivalents of the German lysol. Between each dressing the gloved hands are washed in soap and water and rubbed with the lotion. Wool dabs are used in the lotion, gloved hands rinsed in it, and instruments kept in it. The whole process is simple and expeditious. Bare hands get infected and infect clean cases. Fresh rubber gloves for each case are unnecessarily time-consuming and costly. To use sterilised gauze for mops in these infected cases is unnecessary.

The prolonged hot iodine bath for limbs is very useful; three or four hours at a time alternating with the fomentations. Whilst in the bath the patients are encouraged in the use of muscles and joints.

I am accustomed to say in speaking of limb injuries "Do not think of the wound, think of the limb below it. Endeavour to minimise the crop of cripples which this war will bring forth." Everything possible must be done to prevent stiff joints, atrophied, paralysed, glued-together muscles, lengthened tendons, loss of grasp, dropped hands, and dropped feet. Later we shall have war hospitals which by electricity, by massage, by hot-air baths, and by mechanical and surgical methods are endeavouring to cure what might have been in many instances prevented by carrying on side by side with the wound treatment, treatment calculated to restore the usefulness of the limb.

The patients must be stood over at the time of their dressings and carefully and methodically put through different movements and exercises. With the arm, for example, the patient is told to use every endeavour to make this or that movement, to make finger meet thumb, to flex and extend the wrist, to pronate and supinate, to grasp, to separate and close together the fingers. It is explained to the patient that all this painful exertion is for his own good, and to give him a useful limb later.

¹ Prepared according to Mr. Rushton Parker's formula by Messrs. Sumner and Co., Liverpool. (See Brit. Med. Jour., Oct. 31st, 1914.)

Splints should be designed to keep a limb in its most useful position and to prevent tendons lengthening. In wrist drop, for example, arm splints are prolonged by a piece attached at an angle which dorsiflexes the palm, leaving the fingers free. The arm extension splints of Borchgrewink, for my knowledge of which I am indebted to Mr. E. W. Hey Groves, of Bristol, are occasionally useful, but it is difficult to apply the extension strapping in the presence of a septic wound. The humerus splint is shown in Fig. 1.

FIG. 1.



Extension splint applied in compound shell fracture of humerus.

Shell fragments require removal when infection in the wound has practically ceased, or if it is obviously the fragment which is keeping up the infection. They will not usually remain in permanently, wounds which have apparently healed breaking down again. Not infrequently a bit of clothing comes out with the fragment. Although the nearness to the skin of the missile in deep injuries may sometimes be due to its "working its way out," yet I think there is a condition which may be called "shrapnel recoil," the missile hitting bone and then springing back. In an officer hit by a fragment of shell, which went through the temporal muscle and completely fractured the temporal bone, the X ray and operation showed the fragment close under the skin near the entrance wound.

Head wounds should not be left alone in the same way as others, as South African experience taught; they should, except in obviously trivial superficial injuries, be explored, as there may be deep damage to bone or brain, although no definite immediate symptoms are present.

The rule at this hospital is that every infected gunshot wound of less than ten days' duration which has not yet had a prophylactic injection of tetanus antitoxin shall have one. So far there has been no case of tetanus, but I heard that the British army had passed out of the "tetanic belt"—i.e., the richly manured soil area—before this

hospital began to receive patients. The bacteriological investigation of all septic wounds admitted has been carried out by my colleague, Lieutenant B. G. Klein, R.A.M.C. All the shell wounds have been infected, many of them badly, and having a very foul odour. The predominant organism is a streptococcus, mixed often with anaerobic bacilli. Stock serum and autogenous vaccines have been used with apparent benefit in some cases.

X rays are used in all cases, even where entrance and exit wounds show that the projectile has passed through, for shell fragments or foreign bodies carried in may be left behind or there may be unsuspected bone damage. An officer who showed shrapnel entrance and exit wounds subsequently had removed from his leg a portion of the buckle of a leather gaiter. The cross-thread localising apparatus is too tedious and tiresome for ordinary use; I wonder to what extent it is used in the war hospitals that have provided themselves with it. Localisation is usually adequately obtained by photographs in two planes. The telephone probe forceps as modified by me has proved occasionally useful.²

A detailed clinical history ascertained by a series of routine questions is of value in revealing unsuspected details and for collective investigation of cases. The length of the missile track is measured by a pair of obstetric callipers. Without careful investigation a third wound, and so a lodged missile, may be missed. A man had entrance and exit wounds on the inner side of the right thigh; he said that he had been told in another hospital that there was no bullet in him. There was tenderness in the right side of the scrotum and a tiny wound at its posterior part; a deformed bullet was extracted anteriorly under local anaesthesia. Convenient terms for different wounds are: "gutter wound," "subcutaneous channel wound," "traversing wound," "double traversing wound," and "lodging wound." A rough drawing, or the marking of wounds on a clinical diagram, adds much to the value of the description of a case.

Arm wounds are common. The men are hit in the trenches, where only the arms and head are exposed. The head wounds are often fatal; hence the frequency of arm wounds. Compound comminuted fractures of the humerus are frequent. Leg wounds are often inflicted when running; they are occasionally across both thighs, and may involve the scrotum; the sciatic nerve is sometimes bruised, producing dropped foot or sciatic neuritis. All the many complications of severe head injuries are observed. Superficial wounds of the head may produce unconsciousness lasting for several hours. Temporary loss of speech and hearing lasting several days may follow a shell explosion near the patient.

With penetrating chest wounds pyopneumothorax occurs. No penetrating abdominal wounds by shell have so far reached this hospital; such injuries are probably usually fatal.

Typical skiagrams are appended. They were taken in the X ray department by Lieutenant Klein.

The following case of traumatic aneurysm is of special interest.

Shell wound of calf; fragment in medullary cavity of tibia; traumatic aneurysm.—The patient, a sapper (R.E.), was wounded on Oct. 18th by a shell bursting near him. His own field dressing was applied within five minutes. He was admitted to the Welsh Hospital on Nov. 8th, three weeks

² Journal of the Royal Army Medical Corps, April, 1906.

FIG. 2.



Compound fracture of left humerus. Septic. Large shell fragment removed. Bone union and wound healed.

FIG. 3.



Compound fracture of left humerus. Septic. Shell and bone fragments seen. (Still under treatment.)

FIG. 4.



Compound fracture of left humerus. Longitudinal passage of missile. Septic. Shell and bone fragments clearly to be seen. (Still under treatment.)

FIG. 5.



Compound fracture of right radius and ulna. Septic. Stated to be by bullet at 100 yards. Much comminution. (Still under treatment.)

FIG. 6.



Compound fracture of proximal phalanx of left middle finger and adjacent metacarpal. Septic. Accidentally self-inflicted by bullet when hand over muzzle. (Will lose finger.)

FIG. 7.



Compound fracture of left tibia. Septic. Shell fragments removed after bone had united.

after his injury. In the upper part of the right calf was a large pulsating swelling with thrill and bruit; there was no pulse in the posterior tibial at the ankle; the foot was somewhat cold and pale. Antero-posterior and lateral skiagrams showed shell fragments apparently in the medullary cavity of the tibia. Scar of entry wound seen.

Operation was proceeded with on Nov. 13th (tourniquet). The aneurysm was laid open by a long vertical incision through the calf muscles. It was found that both the posterior tibial artery and vein were wounded; a number of branches and tributaries had to be tied which occur in this situation. A long length of the posterior tibial nerve was held on one side to safeguard it. A hole in the tibia was enlarged and the shell fragments found free in the medulla $1\frac{1}{2}$ inches below point of bone entrance. The wound was closed with drainage and it healed aseptically, the man leaving the hospital on sick furlough on Dec. 14th, recovered except for slight weakness of leg.

I am indebted to my colleagues, Lieutenants F. Armstrong, J. S. Rowlands, and T. Garfield Evans for their careful observation of cases which has helped in the preparation of this paper.

Netley.

X RAYS IN WAR TIME.

By EDWARD W. H. SHENTON, M.R.C.S. ENG.,
L.R.C.P. LOND.,
SENIOR RADIOGRAPHER, GUY'S HOSPITAL.

A RECENT article by an eminent surgeon on X ray examination in bullet wound cases suggests that many who are now tending the wounded are unacquainted with the existence of modern X ray possibilities. A brief description of a system which I published 16 years ago and have used ever since may therefore be of service.

I must at the outset make some dogmatic statements which I am well aware will not meet with universal approval. I hope, however, that the fact that they are the outcome of opinions formed during ceaseless X ray work since the year 1896 will allow them to have some weight.

X ray photographs should not be used for the localisation of foreign bodies except in very special cases. I make this statement having seen more unsuccessful operations from this cause than any other. I do not wish to elaborate this point further. In the next place I would say that there is no difficulty with ordinary good modern apparatus in seeing an embedded metallic fragment in any part of the human body fluoroscopically—that is, on the screen. The only exceptions to this rule are very small foreign bodies in the eyeball.

If the bullet—I use the bullet as an object for the sake of convenience—is in a portion of the body that can be turned in all directions, we can at once, by screen examination, form a mental estimate of its position. It must be apparent to everybody that if two views at right angles to one another are obtained, we get, as it were, plan and elevation. As in the majority of cases it is possible to move the part examined—that is, to move it in relation to the X ray tube—this should be the first examination made by the radiographer.

I do not intend to go into the complex subject of apparatus, and will merely deal with general principles.

First, the tube should be below and the screen above the patient. The tube should be enclosed in an X ray proof box, a metallic diaphragm reducing the unnecessary X rays. By suitable means, which common sense will dictate, the rays emanating from the tube must be so adjusted that the axis of the beam is vertical in relation to the patient's body.

Diaphragms of different diameter—for example, holes cut in thick sheet lead—are required for modifying the size of this beam.

Let us now take a simple example of an embedded bullet—a bullet in relation to the lower end of the femur. We adjust our beam of light as the patient lies upon his back, so that the bullet appears in the centre of the resulting small disc of illumination on the screen. Beneath the screen, and touching the skin, a metal pointer is pushed until its tip meets the bullet (I should more correctly say until its shadow meets the shadow of the bullet upon the screen). This point is marked upon the skin, and so long as the laws of nature hold good the bullet must be vertically under this mark. The radiographer can do no more in a case of this kind than indicate the spot under which the bullet is lying and give a depth at which it lies. He may, of course, do this from various aspects, but practically speaking this is all he can do, and all he should be expected to do. All systems of localisation are eventually reduced to this, though some admittedly take a long time before they definitely disclose their purpose. A spot having been marked upon the skin beneath which the bullet is lying, it is now required to find the depth. The patient is turned upon his side (in the case, e.g., of the left knee, on the left side; of the right, on the right). The screen and bull's-eye of light are again adjusted, and at this stage it must be apparent to the observer whether the bullet lies in front, behind, or inside the bone. With regard to the last-named position, if when viewed antero-posteriorly the bullet lies within the shadow of the bone, and when viewed laterally it is again seen within this shadow, the bullet must be in the bone. At this stage a piece of leaden fuse wire should be rolled round the metal pointer (for which latter a knitting-needle will do excellently), so that when held under the screen it is possible to indicate a given length by sliding the lead wire backwards and forwards. Although I have specially made appliances for this work, I purposely describe how it may be accomplished with the very simplest tools. The pointer is now placed on the ink-mark, and is held in a horizontal position. The lead-wire stop is slid along the pointer until the distance of the stop from the point is equal to the distance of the bullet from the point, as measured on the screen. As bullet and pointer are now on the same plane in relation to the screen and tube, it must follow that the distance marked off on the pointer is the exact distance of the bullet from the tip of the pointer—that is, the exact distance under the ink-mark upon the skin. No surgeon wants to work in millimetres in cases of this type, but this distance can be measured to any degree of accuracy. While the pointer is in position, I should like to call attention to an interesting fact which will be of value later. The tube is moved to and fro, a considerably larger diaphragm being substituted for the small one previously worked with. The shadows of pointer and bullet are seen to make wide excursions across the screen, but they will always maintain the same distance on the screen, and this can be verified by measurement. Now move the pointer nearer the screen and again take measurements. It is seen that these two objects no longer keep the same distance apart, but vary considerably; in other words, the shadow of the bullet makes a much longer excursion than the shadow of the pointer.

To take an extreme case, let the pointer touch the screen; when the tube is moved the pointer will remain still while the bullet travels. This fact should be kept in mind.

Let us take a different class of case, the case where the part examined cannot be turned. This may result from various causes unnecessary to enumerate, but which will occur to the reader. The bullet, as before, is viewed from any available position and the skin is marked. With the screen kept rigidly horizontal, the pointer is manipulated as near the bullet as circumstances will allow, until it is in such a position that the shadow of the pointer and the shadow of the bullet keep an equal distance when the tube is moved from side to side. When this stage is reached the pointer must be on the same plane as the bullet, and the distance of the pointer from the screen is the distance of the bullet from the mark on the skin, assuming that the screen is kept in contact with the skin. Again, I should say that I have a special little instrument for carrying out this work, but a normally dexterous person can attain extreme accuracy after a little practice by merely using simple appliances. The advantages of this system are as follows. First, there is accuracy. Secondly, there is rapidity—a great factor; two or three minutes will give the localisation of any embedded metallic foreign body. Thirdly, this system has been used in the past in tens of thousands of cases, and has proved its infallibility.

I have endeavoured to describe the principle as well as the technique, but am not sure that I have made myself understood. I have already been able to help several of those who are taking up X ray work in connexion with the present war, and if I could be of similar use to others by demonstrating the method in practice it would give me much pleasure to do so.

In the statement above regarding photographic uses of the rays for localisation it should be understood that this refers to localisation pure and simple. Sometimes, over and above measurements, it is desirable to see what the anatomical position of the bullet may be. Also, there may be damage to bones and many other things that make photography desirable, and not least of all is the moral support a radiogram appears to give the surgeon. Any system of localisation that depends upon photography has got, in the first place, to prove its superiority to this satisfactory screen method.

I do not here attempt any discussion of the localisation of foreign bodies in the eye, though this is a subject of much interest.

Harley-street, W.

ROYAL INFIRMARY, DUNDEE.—At a recent meeting of the directors of the Royal Infirmary, Dundee, it was stated that a record number of patients were at present accommodated in the infirmary. Three wards have been set aside for wounded soldiers and fully staffed, the two surgeons, Mr. D. M. Greig and Mr. J. Anderson, had taken a ward each, and Professor MacEwan had volunteered to take the other in addition to the surgical ward which he undertook at the outbreak of war. In all, 64 cases had been received, and the directors had informed the authorities that they were prepared to receive 100 wounded sailors, should that unhappily be necessary. A large number of the staff had left to join the army; but their duties had been willingly undertaken by those who were left. The outdoor maternity cases had much increased, owing probably to so many doctors having left the town. The work of the sanatorium was proceeding as usual. A large number of the adult patients had been discharged cured, one man having been accepted for the army.

A CASE OF SPONTANEOUS RECOVERY FROM DETACHMENT OF THE RETINA.

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IN THE LANCET of Sept. 12th last Mr. Charles Higgens recorded some cases of spontaneous recovery from detachment of the retina. One of these, the first that he mentions, I remember well, as I saw the patient in Guy's Hospital when she was under treatment, and her recovery made a great impression on me. I have lately seen another case, and as such experiences are comparatively rare it may be worth recording.

The patient, an unmarried woman aged 45, consulted Mr. A. V. Moberly, of Surbiton, on July 11th, 1914, for sudden loss of vision in the left eye which had come upon her on the previous day. Mr. Moberly examined the eye with the ophthalmoscope and observed the detachment of the retina, and sent the patient to me for further advice. I saw her on July 15th, five days after the sudden loss of vision. The right eye was highly myopic, but with her glass, -11 D. sph.

she saw 6/12. In the left eye there was an -1 D. cyl. vert. extensive transparent detachment of the retina, involving considerably more than the lower half of the globe and obscuring the disc and macula. There were no vitreous opacities or other signs of inflammation. Vision in this eye was reduced to bare perception of light. Owing to the patient's circumstances any prolonged treatment by rest in bed, pilocarpine, or mercurial inunctions was impossible, and as I told her that in any case the chances of recovery were extremely remote, she decided to write off the left eye as hopeless and go on with her usual occupation without treatment. About a fortnight later Mr. Moberly wrote that I might like to hear that the patient had come to him to say that the sight in the left eye had returned, and that she could, with the aid of her glass (about -11 D. sph.), read 6/12 with that eye. I saw her two days later and found that her vision was as Mr. Moberly had stated, and that there was not a trace of the detachment to be seen. The retina was everywhere smoothly replaced and transparent, and the field of vision was complete. The patient said that about ten days after she saw me on the first occasion the sight began to clear on the outer side of the field of vision, and that the whole field gradually became complete. At first she felt as if the eye was half closed, the upper portion of the field of vision being the last to clear.

In a former case of spontaneous recovery from detachment of the retina in both eyes associated with albuminuric retinitis, which I have reported,¹ the area of previous detachment was covered with fine wavy lines of pigment resembling lineæ gravidarum; these the late Mr. Edward Nettleship suggested might be due to the heaping up of retinal pigment in the folds of the retina as the serous exudate was slowly absorbed. In this case there was no such appearance. With the exception of a posterior staphyloma, and the rather thin choroid of high myopia, the interior of the eye was normal in every respect.

I do not know that any satisfactory explanation has been given of the fact that in cases of detachment of the retina vision only remains in abeyance and is restored immediately the retina once more comes in contact with the choroid. The loss of vision can hardly be due to any failure of vascular or lymphatic circulation, as under these circumstances the retina would degenerate rapidly after detachment and recovery after an interval of any length would be impossible. The retina always strips away leaving the layer of pigment epithelium

¹ Transactions of the Ophthalmological Society of the United Kingdom, vol. xxiv., p. 147.

attached to the choroid, and it seems probable that without the pigment epithelium, and possibly the visual purple, the other layers of the retina cannot perceive light. At any rate, for some long period after a detachment the nutrition of the retina remains quite unimpaired and vision is recovered immediately contact with the pigment layer is restored. The extremely defective vision of pronounced albinos suggests that the pigment layer of the retina is essential to vision, and that in detachment of the retina it is the separation of the rods and cones from the pigment epithelium that causes the blindness over the area of the detachment.

Portland-place, W.

AMPUTATIONS IN WAR SURGERY.

By M. FITZMAURICE-KELLY, M.B., B.S. LOND.,
F.R.C.S. ENG.,

TEMPORARY LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

THE first maxim of the surgery of the extremities at all times is, I take it, a rigid conservation, and this is far more true in time of war than in the ordinary work of civil practice. With careful treatment many injured limbs, the result of shell wounds (which, had they been caused by a motor omnibus, would have been condemned to summary amputation), make a good recovery, and leave a useful, if imperfect, member. Nevertheless, there remain cases, all too numerous, where the sacrifice of a limb has to be faced as the only safe course, and one is driven to amputate in conditions utterly different from those of any previous experience, in which the routine methods are inapplicable, or, if applied, bring disaster in their train.

The object of the present note is to call attention to a method of amputation first suggested, as far as I know, by me, and now widely practised in the military hospitals of this part of France both by British surgeons and by our French confrères. It has, I think, certain advantages over the methods previously employed, and in many cases saves life or limb; and, further, it seems advisable to communicate the method, and the reasons behind it, to the profession at home, as the resulting stump is to the uninitiated somewhat surprising, and it has reached our ears that some surgeons at home have been startled into uncharitable remarks that a little reflection would perhaps have suppressed.

The chief conditions calling for amputation in the present war have been compound comminuted fractures and gaseous gangrene; the latter one of the most terrible complications in the earlier days of the war, but apparently diminished for the time by the advent of colder weather. In both a virulent infection is present and ordinary amputations are very frequently followed by recrudescence of the infection in the flaps. Further, the mortality following secondary amputations has in the past been high. It is impossible to make even a guess at the figures for the present war, but on the combined statistics of the Spanish-American and Boer Wars Lagarde states it as 42·5 per cent. in the case of the thigh and 21·2 per cent. for the leg. In the present war, where gangrene has been a prominent feature, the figures, at any rate in the earlier days, would probably be higher.

It has long been recognised that in war surgery amputation flaps should be cut rather short, and in the present war the French surgeons soon found

that it was better not to stitch them at all, but to pack gauze between the flaps. The method I advocate goes still farther—goes, in fact, right back to the dawn of surgery. It consists in a simple circular division of all the tissues, including the bones, at the same level, and that level the lowest possible. The skin is divided by a circular sweep, the muscles are divided at the level to which the skin retracts, and the bone is then sawn at the same level. The bleeding points are secured and tied, the nerves pulled down and cut short, and a dressing is then applied to the raw surface of the stump.

The operation is, as will be seen, very simple and very rapid in execution, and the results have been surprisingly good. The stump is not painful if care be taken to shorten the nerves, and there is very little shock. Most surprising of all, it can be performed at the margin of gangrenous tissue, without, apparently, any danger of the gangrene spreading to the stump; in one case of massive gangrene reaching the middle of the upper arm amputation was performed half an inch from the gangrenous tissue, and the stump remained healthy. The acuteness of the case may be judged from the fact that the operation was performed within 48 hours of the infliction of the wound. And in cases of compound fracture of the femur, with the wounds in the groin and buttock and the fracture just below the trochanters, I have amputated below the wounds, enucleating the lower fragment and laying open the sinuses on to the surface, with complete success. I am convinced that disarticulation at the hip-joint would in this case have proved fatal—indeed, no surgeon who saw the case would have attempted it.

To sum up, the advantages claimed for the method are: 1. Economy of tissue. The amputation is performed at the lowest level at which a flap could be cut, or even lower, and all recoverable tissue is thus preserved. 2. It is applicable to otherwise hopeless cases, such as wounds or gangrene at the root of the limbs, and in these cases carries a much better prognosis than disarticulation at the hip- or shoulder-joint. 3. It is very rapidly done, and there is very little shock. 4. The surface from which septic absorption can occur is the least possible, and the drainage is free. 5. The nutrition of the stump is unimpaired; in this respect its advantage over a flap amputation is obvious. 6. It is so simple that it is within the range of everyone, and does not need an experienced surgeon for its performance.

It has, I think, other advantages in particular cases. One in particular, that presents itself not infrequently, is the case of multiple wounds. As an example a case in one of the French hospitals in this town may suffice. The patient was wounded by a shell which reduced the foot to pulp and sprinkled the whole limb with splinters to above the level of the knee. In this case it was urgent to remove the foot, and the presence of septic wounds in the leg made it impossible to obtain suitable flaps. The foot was removed by transverse section of all the tissues just above the ankle-joint and the other wounds treated by free drainage. The patient made a good recovery with the loss of the foot only.

The chief disadvantage of the method is that a second operation—a re-amputation—is necessary. But this second operation can be postponed until the infection of the wound has disappeared, and can be undertaken in conditions wholly favourable

as to time and place, and should therefore be without danger. It is, I think, an inconvenience rather than a contra-indication.

In bringing this method before the profession I am permitted to say that Colonel G. H. Makins and Colonel F. F. Burghard, consulting surgeons to the Expeditionary Force, approve of the operation under the conditions occurring in this campaign. And I must further express my indebtedness to Lieutenant-Colonel A. J. Luther, R.A.M.C., officer commanding this hospital, for permission to publish this note on a part of our work.

No. 13 General Hospital, Boulogne Base, British Expeditionary Force.

TWO CASES OF CICATRICIAL STENOSIS OF THE LARYNX.

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THE treatment of cicatricial stenosis of the larynx is notoriously difficult, although recent improvements in technique have added much to the prospects of successful intervention. More particularly have adaptations of O'Dwyer's tubes to this purpose, the details of which have been elaborated by John Rogers and Bryson Delavan, of New York,¹ contributed to a better result. The older method of fixing in the larynx an upward extension from the tracheotomy cannula was seldom able to produce good permanent dilatation. In a male patient with almost complete syphilitic stenosis I obtained a partial success by means of a T-shaped cannula after thyrotomy, so that the patient, though unable to dispense with a tracheotomy tube, could wear a plug in it and speak with a loud gruff voice when last seen several years after treatment. Intermittent dilatation with Schrötter's bougies is inferior, in my opinion, to intubation, and demands continuous skilled attention over a very long period. Laryngostomy, which consists in splitting the stenosed larynx and trachea and dilating from without, is a severe operation necessitating prolonged after-treatment and a final plastic closure of the wound. Dr. V. Delsaux, of Brussels,² reported in 36 cases 14 successes, 6 deaths, and 14 cases still under treatment.

The following are notes of my two cases:—

CASE 1.—A female, aged 22, consulted me in August, 1907. She had suffered from "a cold and laryngitis" since the early part of 1906. In September of that year thyrotomy had been performed and "a piece of growth," reported to be simple hyperplasia of the tissues, removed. In March, 1907, she had a sudden very urgent attack of dyspnoea in the night and tracheotomy was performed in haste. Subsequently, in July, an attempt was made to dilate the laryngeal stricture from below with a Störk's cannula after division with a Whistler's guarded knife. This was, however, unsuccessful, the patient finding it very uncomfortable and being unable to breathe through it. When I saw her in August she was completely aphonic and wearing a tracheotomy tube. The upper aperture of the larynx was normal, the stricture appeared at the level of the ventricular bands, which were adherent as far back as the vocal processes, leaving a triangular gap corresponding to the cartilaginous glottis. There was no sign anywhere of active

disease, no appearance suggestive of syphilis, and the original cause of the trouble remained then and afterwards undiagnosed.

After a consultation with Sir Felix Semon I determined on his advice to divide the scar and dilate with Schrötter's bougies. Accordingly, on August 19th I divided the stricture, which was very dense and felt almost like cartilage, under cocaine by the indirect method with a specially made curved probe-pointed bistoury set on a laryngeal handle; a No. 7 Schrötter's bougie (antero-posterior diameter 9/16 inch) was then passed without difficulty. Bougies, gradually increased in size, were passed daily until Nov. 4th, and then three times a week. On Nov. 22nd a small adhesion was found in the anterior commissure and divided, after which a No. 11 bougie (diameter 11/16 inch, the full length of the average female glottis) passed easily, and was used daily for three weeks, twice a week for a further three weeks, and then once a week, the patient being allowed to go home.

On Feb. 11th, 1908, another small adhesion which had formed in the anterior commissure was divided, after which there was no further difficulty, a No. 11 bougie being passed easily at lengthening intervals. Since the beginning of treatment the tracheotomy tube had been kept plugged; it was removed in July, 1908, and the fistula pared and closed. The bougie was passed occasionally up to June, 1909; the glottis was freely open, a very small adhesion being visible in the anterior commissure. The condition remained unchanged when I saw her in February, 1911, three and a half years after the division of the stricture, and it seemed that a permanent cure might be reasonably expected, but within a fortnight she had contracted a severe attack of bronchitis while waiting in a dog-cart on a cold wet day, had become rapidly dyspnoic, and had had to undergo a hasty tracheotomy. When I saw her four months later she could not breathe without her tube, which had been introduced through the divided cricoid cartilage. The site of the original stenosis was widely open, but a dense stricture was visible in the subglottic region, its orifice situated posteriorly, just above the level of the tracheotomy tube. This time, having had the advantage of hearing Dr. Delavan's views at the meeting of the British Medical Association in 1909, I decided to try continuous dilatation with intubation tubes. A low tracheotomy was first performed and the tube removed from the upper wound, but it was not found possible at the time to introduce a fair-sized O'Dwyer's tube; an attempt was therefore made during the next three weeks to dilate with smaller tubes and Schrötter's bougies, and on July 5th the trachea was slit up between the two tracheotomy wounds and, assisted by a silver catheter passed from below, a large vulcanite O'Dwyer's tube was inserted with considerable pressure of the finger upon its head. The tracheotomy wound was kept open as a precaution for four or five days, but was then allowed to close as the tube was retained comfortably. This tube was removed after nine weeks and a larger one introduced for three months, when a still larger tube was inserted, and finally removed 15 weeks later, on March 13th, 1912. An injection of morphine and atropine was given and no spasm occurred. The patient has been seen since at intervals, and although there is a prominence anteriorly in the subglottic region she has no respiratory obstruction, and as it is now two and three-quarter years since the termination of treatment there is good reason to hope that the cure is permanent. She has a loud whisper but remains aphonic.

The tubes were changed whenever any foulness of the breath was complained of, but were never very dirty; the patient lived at home in the country during treatment, only coming to London for a few days when the tube was changed, and the contrast with the tedious dilatation by Schrötter's bougies was very marked. Delavan mentions a case in which the tube remained in unchanged for two years, and others in which intubation extended over four to six years, and remarks that it is better to wear permanently an intubation tube than a tracheotomy cannula; my patient was certainly very comfortable during treatment.

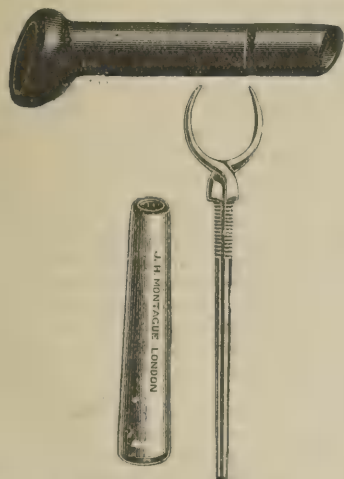
In the above case the tubes were well retained and showed no tendency to be coughed out. Delavan has pointed out that the transverse diameter of the swell must be at least 3/32 inch wider than

¹ Rogers and Delavan: The Treatment of Chronic Laryngeal and Tracheal Stenosis, Transactions of the American Laryngological Association, 1905. Annual Meeting of the British Medical Association, Laryngological Section, Brit. Med. Jour., Oct. 16th, 1909, p. 1144.

² Annual meeting of the British Medical Association, Laryngological Section, Brit. Med. Jour., Oct. 16th, 1909, p. 1141.

that of the neck in order to avoid this accident; the smallest tube which I employed had a breadth of 9/32 inch at the neck and 13/32 at the swell, the largest 12/32 and 17/32 respectively. In the following case, however, owing to the small size of the infantile larynx, and to the fact that it was necessary to make the neck of the tube as large as possible in order to dilate the stricture at the level of the glottis, I employed Roger's and Delavan's device of a "clamped" tube.

CASE 2.—A little girl, aged 19 months, was admitted into St. George's Hospital under Mr. F. Jaffrey on Feb. 1st, 1913, in a state of dyspnoea, having drunk that day from the spout of a teapot. Tracheotomy was performed that night, the tube was removed on Feb. 12th, and she went home on March 1st. She was readmitted on April 5th, having had inspiratory stridor for a fortnight. Tracheotomy was performed through the old scar four days later, and was followed by an attack of broncho-pneumonia. On June 21st I examined under anaesthesia with the direct laryngoscope and found a very tight stricture at the level of the glottis which I dilated with gum-elastic urethral catheters. I dilated again on July 2nd up to No. 12 English size, and had two specially small O'Dwyer's tubes made which I passed on July 16th, leaving in the larger above the tracheotomy tube, but it was quickly coughed out. A fortnight later I succeeded in introducing several larger tubes, including one of vulcanite made extra long and of the same diameter all the way down from the head except for a slight taper at its extremity, and its lower end cut obliquely to facilitate introduction. I marked this tube with a heated bradawl through the tracheotomy fistula, had a groove cut at this level, and fixed it on the following day with the clamp passed through the fistula. This clamp (see figure) is of white



Tube and clamp used in Case 2.

metal, made in two pieces for introduction separately like obstetric forceps, and has a plug screwed over the shank to fix it and at the same time to keep open the fistula in the neck. The tube gave very little trouble and the little patient was sent home. She was re-admitted and extubated two and a half months later on Oct. 15th; she had several attacks of coughing and slight dyspnoea, but was comfortable by the 18th. I saw her last on Nov. 23rd, 1914; there was no dyspnoea nor noisy respiration either during sleep or on exertion, the voice is usually a natural childish treble, but occasionally "breaks" into a gruff tone.

This ingenious "clamped" tube has the double advantage of obviating the risk of spontaneous extubation, which would be quickly fatal in the early stage of treatment, and of keeping open the fistula in the neck so that a tracheotomy cannula may be easily inserted should dyspnoea follow the final removal of the tube.

Queen Anne-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF ACUTE TETANUS; RECOVERY.

By F. J. FARRELL, M.B.,

AND

G. G. MECREDY, M.B. DUB., D.P.H.

THE short incubation period and acute onset, the delay before treatment was commenced, and the eventual recovery are points that make the following case one of interest.

A man, aged 28 years, while leading a restive horse on Oct. 10th, 1914, sustained a small abrasion on the left hip. The wound appeared trivial, and he took no notice of it. Two days afterwards (the 12th) he complained of a stiffness of the left masseter muscle, but did not consult a medical man until Oct. 16th. At this time he was suffering from noticeable stiffness of both jaws, and was not able to open his mouth widely. He did not mention that he had sustained a wound, and a diagnosis of tetanus was not made until the following day. 3000 units of antitetanic serum were given subcutaneously, and he was removed to the local hospital. The wound was swabbed with liq. iodi fort. On admission the temperature was 97.4° F. and the pulse 130. The head was retracted and the tendon reflexes were greatly exaggerated. Treatment during the following four days consisted in subcutaneous and intramuscular injections of antitetanic serum. 15,000 units were given in this manner. Continuous saline solution was given per rectum. Large doses of chloral and potassium bromide were administered by the mouth every three hours. The convulsions were controlled by chloroform inhalations. On Oct. 22nd the patient's condition had become worse; he was slightly delirious and had several violent spasms of the muscles of the back producing marked opisthotonos. By lumbar puncture 10 drachms of cerebro-spinal fluid were removed and 4500 units of antitetanic serum were injected into the spinal canal; at the same time 6000 units were given intravenously and 1500 subcutaneously. Eight hours later the temperature had risen to 103.4°, and the patient became wildly delirious. The serum treatment was continued subcutaneously, and with the exception of the delirium, which lasted for ten days, the patient improved rapidly and made an uninterrupted recovery.

Bagenalstown.

NOTE ON A CASE OF THROMBOSIS OF THE PORTAL VEIN AND TRIBUTARIES, WITH GANGRENE OF THE SMALL INTESTINE.

By LEONARD H. TAYLOR, M.B., B.S. LOND.,

MEDICAL OFFICER TO THE KELANTAN GOVERNMENT, PROTECTED
MALAY STATES.

A Sikh policeman, 30 years of age, was admitted to the State hospital after five days' illness complaining of "attacks of colic, fever, and slight cough." The patient was a strong, well-built, and well-covered man. On examination there were no physical signs in the chest and the abdomen moved well but was tender on palpation. The temperature on admission was 100° F. He stated

that he was generally constipated, which proved to be the case while he was in hospital. On July 24th and 26th he had slight attacks of colic, and on the 27th he passed one large worm (*ascaris lumbricoides*). It was then thought that "worms," a very common complaint, might be the cause of his trouble, and he was treated accordingly. No more worms were passed, however, and the general abdominal pain was not controlled except by morphia. From the 28th onwards very little food was retained, but there were no other signs of obstruction. The bowels were opened every other day with the help of drugs; the faeces were normal and there was no blood. Examination under the microscope discovered no ova. On August 3rd he vomited a little dark blood, and the next evening he died. Under post-mortem examination the following condition was made apparent. On opening the abdomen purple coils of small intestine presented, and this early gangrene extended from the caecum upwards for 9 feet of gut. About one pint of blood-stained serum was sponged out of the peritoneal cavity. The liver was pale but otherwise normal, as were the other organs. After carefully removing the intestines the veins were examined and the portal, superior mesenteric, and pancreatic veins were seen to be full of dark blood-clot, the thrombus extending up to the liver. The gangrenous part of the opened gut contained bright blood and in the caecum there were three stercoliths. Others were also present in the large intestine. There were no worms.

It would seem that the stercoliths set up an inflammation of the caecum and appendix, and from these foci the infection reached the blood stream. The "spurious diarrhoea" is a point of interest.

Kota Bharu, Kelantan.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

Exhibition of Cases.

A MEETING of this section was held on Dec. 17th, 1914, Dr. J. H. STOWERS, Vice-President, being in the chair. The following cases were shown:—

Dr. W. KNOWSLEY SIBLEY showed a young woman who suffered from attacks of Intense Cyanosis and Sweating of the Hands during the winter. He considered the case one of Angiokeratoma.—Dr. ARTHUR WHITFIELD, Dr. H. G. ADAMSON, and Dr. STOWERS were inclined to consider the case one of Crocker's "winter eruption" with dysidrosis.

Dr. SIBLEY also showed a girl with Red Patches on the Hands which recurred in the winter.—Most of the members present considered the case one of lupus erythematosus.

Dr. H. MACCORMAC showed a woman, aged 64, with Chronic Inflammatory Lesions of the Hands, Feet, Knees, and Elbows, which he considered to be of toxic origin.—Dr. ADAMSON, Dr. E. GRAHAM LITTLE, Dr. A. D. HEATH, and Dr. A. M. H. GRAY agreed that the case probably belonged to the group of persistent exudative erythemata, of which some examples had previously been shown.

Dr. LITTLE showed a case of Multiple Rodent Ulcers.—Dr. ADAMSON, Dr. WHITFIELD, Dr. S. E. DORE, and Mr. J. E. R. McDONAGH discussed the relationship of these cases to multiple benign epithelioma.

Dr. LITTLE also showed two cases of Arrested Hair Growth, one case being congenital and the other coming on after an attack of "eczema" of the scalp at the age of 15.—Dr. G. PERNET discussed the question of deficiency of secretion of the ductless glands in these cases.

Dr. DUDLEY CORBETT showed a man, aged 23, with numerous Small Raised Tumours scattered over the body; he also demonstrated sections of the tumours. The question arose as to whether these tumours were of epithelial or granulomatous nature.—Dr. WHITFIELD was unfamiliar with the

condition, and did not consider that the case corresponded with any described disease.—Dr. ADAMSON thought the case one of xanthoma diabetorum of unusual type, with which view Dr. LITTLE and Dr. PERNET agreed.—Mr. McDONAGH said that the case reminded him of lichen nitidus.—The case was referred to the Pathological Committee.

Dr. DORE showed a patient with a Patchy Eruption on the Trunk of yellowish colour and of short duration associated with similar more chronic lesions on the shins. He thought that the diagnosis rested between pityriasis rosea and xantho-erythrodermia perstans.—Dr. PERNET, Dr. LITTLE, and Dr. STOWERS favoured the former view.

Dr. DORE also showed a case of Alopecia Areata of the Scalp associated with a similar condition of the eyelids, and an unusual case of Lichenification in which the pre-existence of a lichen planus was in question.

Dr. PHINEAS S. ABRAHAM showed a case of Lupus Erythematosus exceptionally developed on the fingers.—Dr. DORE agreed with the diagnosis, but remarked on the resemblance to lichen planus.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held in the Metropolitan Hospital on Dec. 18th, 1914, Dr. David Ross, a past President, being in the chair.—Dr. W. Langdon Brown conducted a clinical afternoon and showed: 1. Skiagrams demonstrating a case of Appendix Dyspepsia. The first plate showed the bismuth meal four hours after administration in the caecum; the second, eight hours after administration in the caecum and transverse colon; and the third, 20 hours after administration in the caecum and rectum, the transverse colon being empty, the residue in the caecum showing stasis in the affected region. 2. A girl who was sent to hospital on account of frequent attacks of blood in the urine, preceded by dead fingers. The condition was described as paroxysmal hæmoglobinuria, no red corpuscles being found. The causes of this condition were stated to be two—syphilis and Raynaud's disease. The Wassermann reaction was positive; potassium iodide and mercurial inunction were being used. 3. A girl, aged 7 years, who had been in hospital in 1911 and 1913 and again in November, 1914, who suffered from vomiting every five or six days followed by acetone in the urine. Cyclical vomiting of children due to *E. coli* was diagnosed and the indican reaction demonstrated. This consisted of mixing equal parts of urine and hydrochloric acid, adding a few drops of hydrogen peroxide and shaking up with chloroform when a blue colour appeared. 4. A boy, aged 10 years, who had had rheumatic fever, which left him with double aortic and mitral murmurs, and who suddenly developed hemiplegia with aphasia. The streptococcus salivarius was found, and the case was treated with sensitised vaccines. Later pain was complained of in the left side. The spleen was found to be enlarged, due to infarcts. Infective endocarditis was diagnosed. 5. A girl, aged 15 years, with rheumatic fever with raised and tender purpuric spots due to embolic plugs. She had a double mitral murmur. Long-chain streptococci were found and a vaccine prepared from her own blood, after each dose of which a reaction took place. There was no hæmaturia. Later the patient developed pain in the side, and the spleen was found to be enlarged. 6. A man, aged 39 years, a free bleeder on the slightest provocation, complained of pain across the back. The glands in the neck and the groins were swollen. The leucocyte count was 88,000, 99 per cent. lymphocytes. Acute splenic leukaemia was diagnosed. Arsenic and benzol in half-gramme doses, increasing, was being used. 7. A man aged 38 years. He was anæmic on May 9th, 1914, and had epistaxis; later mouth bleeding with pale gums; and still later hæmaturia. Blood count 2,000,000 red, 4000 white. No abnormal cells. In July half a million red cells. Treatment, transfusion 25 c.c. human blood. Red corpuscles reduced. Transfusion repeated. On Nov. 19th red corpuscles numbered 1,320,000. He was still anæmic, but felt better. White corpuscles 5000.—Dr. P. Hamill showed: 1. A woman who was exhibited to the society in May, 1914, suffering from Gumma of the Soft Palate. The patient had had two doses of salvarsan in addition to potassium iodide and mercury, and was much improved, only a small perforation remaining. 2. A woman, aged 44, who weighed 16 st. in October, with a blood pressure of 180 on the right side. Small left pulse, pressure 140. Fusiform dilatation of aorta. No interstitial nephritis. Her weight was reduced by careful dieting at the rate of 1 lb. per month to 15 st.

Reviews and Notices of Books.

Chemical Pathology, being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved.

By H. GIDEON WELLS, Ph.D., M.D., Professor of Pathology in the University of Chicago. Second edition, thoroughly revised. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 616. Price 15s. net.

THE first edition of this work was reviewed in THE LANCET of August 17th, 1907. It is perhaps not too much to say that owing to the rapid advances in the comparatively new science of biochemistry the literature of chemical pathology has received more substantial contributions during these few years than in all the previous history of this branch of biological and medical science. The work of Emil Fischer and Kossel and other chemists on the intimate nature and constitution of proteins and carbohydrates has exercised an enormous influence, as well as stimulated active investigations in many directions, from which have come large additions to our knowledge, more especially in regard to immunity. The fascinating possibilities of the chemical problems associated with the ductless glands suggest the solution on chemical lines of the treatment in some of the most obscure problems of perverted metabolism. No student who would remain abreast of recent progress in biochemistry can afford to neglect the most important advances which have been made in what is practically a new field of observation—viz., that of "colloid chemistry." We are glad to notice that the author besides referring to the large compilations of Abderhalden and Oppenheimer makes graceful reference to the important series of "Monographs on Biochemistry," edited by Plimmer and Hopkins.

The chemistry and physics of the cell are first dealt with, because the chemistry of disease must refer back to the chemistry and physics of the normal cell. This consideration leads the author to discuss the enormous number of chemical reactions of varied nature which at one and the same time are going on in any individual cell, such as a hepatic cell; and as enzymes are present in every living cell without exception, they are dealt with in a manner that presents to the reader the latest investigations in this department, including the question of autolysis in relation to metabolism and pathological processes, and the defence of the cells against their autolytic enzymes. The chemistry of bacteria and their products and of animal parasites, including the story so far as is known of phytotoxins and zootoxins, is next set forth in a most readable and attractive manner. More especially would we direct attention to the careful, lucid, and comprehensive survey of the chemistry of the "immunity reactions" under such subdivisions as antigens, specificity, antitoxins, agglutinins, precipitins, anaphylaxis or allergy, opsonins, serum bacteriolysis, cytotoxins, and the now extensive and important domain of hæmolysis, complement fixation, and the clinically important Wassermann reaction. Inflammation and the disturbances of circulation and diseases of the blood are presented in the light of most recent research. "Edema" next claims attention. Retrogressive changes, including necrosis, and the various infiltrations and degenerations, carry the author on to the subjects of calcification, concretions, pathological

pigmentation, and the chemistry of tumours. The consideration of the vast, but as yet comparatively unexplained, pathological conditions due to, or associated with, abnormalities in metabolism, including auto-intoxication, leads the reader to chemical pathology of the ductless gland, uric-acid metabolism and gout, and finally to a concise account of diabetes by Dr. Rollin T. Woodyatt. As to gout, von Noorden, with all his vast experience, finds that it is not very alluring to write anything regarding the theoretical side of the question. "All theories advanced up to the present time have fared badly. The positive material is much too insufficient and much too ambiguous."

Our knowledge of "chemical pathology," even in well-known and long-established and well-recognised forms of disease, would seem to be in an embryonic phase. Much of the successful treatment of certain forms of disease must inevitably be revealed through the investigations of the new biochemists. We have no hesitation in stating that this comprehensive and suggestive work should be read not only by every pathologist but also by every physiologist. That pathology is but a variation of physiology and that the essential mechanisms are identical is generally accepted, but the evidence in favour of this knowledge has not been better marshalled. We tender to the author our grateful thanks for his illuminating contribution to one of the latest developments of biochemistry—viz., that all-important branch which he calls "chemical pathology."

Atlas und Lehrbuch wichtiger tierischer Parasiten und ihrer Überträger, mit besonderer Berücksichtigung der Tropenpathologie.

Von Dr. med. et phil. R. O. NEUMANN, o.ö. Professor der Hygiene und Direktor des Hygienischen Instituts der Universität Bonn; und Dr. med. MARTIN MAYER, Abteilungsvorsteher am Institut für Schiffs- und Tropenkrankheiten in Hamburg. München: J. F. Lehmann's Verlag. 1914. Pp. 580, 45 plates, and 237 figures in the text. Price 40 marks.

THIS work is a recent member of the important series of medical atlases published by the well-known Munich firm. Though issued in one volume and in quarto form it resembles in character the older atlas of bacteriology by Lehmann and Neumann, and like that work consists of two parts—a text-book and a series of plates. The text is not a mere description of the plates, but a manual of the subject treated, complete in itself, and illustrated with numerous and excellent illustrations in black and white printed in the text, as well as by admirably reproduced photographs of various flies and ticks on separate plates. The atlas, constituting the second part of the book, consists of 45 plates produced in chromo-lithography, each plate containing numerous illustrations.

The book is the result of many years' work, and use is made of the material collected by the Institute of Maritime and Tropical Disease. It is intended to serve as a text-book and a work of reference as well as to assist in illustrating practical courses in the subject with which it deals. It is refreshing to find so large a number of references to the work of English observers, but in tropical medicine at any rate the investigations and researches of English medical men have been of a capital importance which has to be recognised. Perhaps the most characteristic feature of the work is that it deals not only with most of the important animal parasites but also with their carriers and intermediate

hosts. Without this correlated study a proper comprehension of the clinical and epidemiological features of the diseases caused by the parasites and the methods by which they may be prevented or combated is altogether impossible. The organisms and their hosts or carriers are dealt with together, and the means of capturing, breeding, keeping, and transporting them are fully described, as well as the methods by which they are best dissected and prepared for examination.

The work commences naturally with the parasitic protozoa, and then passes under review the more highly organised parasites, the worms, the parasitic larvæ of flies, and fleas and lice. The chapter on the malarial parasites, which is illustrated very fully, is preceded by a short account of the methods of blood examination which are of service for the special purpose of demonstrating the parasites, but attention is also drawn to the cellular changes which occur in the disease. The spirochætæ are regarded as definitely belonging to the groups of animal parasites, and to this group are referred the organisms of relapsing and African tick fever, as well as those of syphilis and yaws. Useful tables are scattered throughout the book, in which summaries of our knowledge of the parasites and their hosts are given; those dealing with the various trypanosomes of the larger and smaller mammals, the blood spirochætæ, the filariæ, and other parasites may be mentioned.

The number and character of the plates constituting the atlas portion of the book have already been spoken of. The majority of the illustrations are accurate and instructive and form a very complete series. The plate of blood cells would perhaps have been of greater use to English students had some stain other than Giemsa been employed for their demonstration. There are a few slips in the descriptions of the objects represented. The book is characterised by German thoroughness, and evidently much labour has been spent upon it and no pains or expense have been spared in its production. It is a work which will certainly be of use in every pathological laboratory.

A Treatise on Clinical Medicine.

By W. H. THOMSON, M.D., LL.D., Physician to the Roosevelt Hospital, New York. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 667. Price 21s. net.

In this large and handsome volume Dr. Thomson has mainly kept in view those subjects which concern the physician when he deals with the sick. Accordingly it occupies itself for the most part with the treatment of disease, and with its symptomatology and pathology so far as they contribute to the formation of the diagnosis upon which treatment must be based. It is of particular interest, because it offers a reflex of the author's own habits and methods in clinical medicine; it is in no way a dictionary or compilation, but gives evidence throughout of the personal touch, and it is clearly founded on individual experience and observations at the bedside.

Dr. Thomson begins with a chapter on the mechanism of surface chill or "catching cold," a process on which he lays the greatest stress. He says that outside hot and moist climates, "catching cold" is the most common cause of disease and death. He attributes this to localised temporary arterial spasm—that is, the reflex result of chill to

some part of the body surface, a local and not a general cooling of the bodily, and clearly believes it to be of the greatest importance in the occurrence of all kinds of disorders. Next follow chapters on certain important symptoms and on remedies, and then 160 pages on the various infectious disorders. The last 400 pages of the text deal with diseases of special tissues or organs, and the book ends with an adequate index.

A great deal of sound and excellent advice to the medical practitioner is conveyed in this volume; the pages on Graves's disease, on infections by the bacillus coli, and on typhoid fever may be particularly mentioned in this respect. When he ventures into the field of scientific explanation the author is not always so happy. It is possible, for instance, that some of his readers will not be able to follow his division of cases of infantile paralysis into the epidemic form due to infection and the sporadic form due to spasm of branches of the anterior spinal artery caused by "catching cold." The book is clearly written and is practical in its outlook; it may be recommended to medical men who want a general text-book of treatment.

On the Graduated Character of Mental Defect and on the Need for Standardizing Judgments as to the Grade of Social Inefficiency which shall Involve Segregation.

By KARL PEARSON, F.R.S. London: Dulau and Co. Pp. 51. Price 2s. net.

THIS lecture, delivered at the Galton laboratory in February, 1913, is published as one of a series of papers on Mendelism and the Problem of Mental Defect. We are told by the author that he takes the subject of feeble-mindedness, the treatment of mentally defective children, as an illustration of his initial pronouncement that a new scientific Renaissance has taken place, and that new standards of logic and accuracy will thus cause much scientific and medical work which may be done in the future on the old lines to be looked upon only as dogma or quackery. Confessing much boldness in drawing the illustration of his thesis from the subject of this paper without any direct experience of the mentally defective, either as a medical observer or as a teacher in special schools, he essays to justify himself by stating his conviction of the need for some "censores scientiarum" or "watch-dogs of science" to warn the public against ignorance that parades as knowledge. He also proposes as an effective parallel to the proper treatment of those who have hitherto dealt with the subject of the feeble-minded, the method of the *Epistolæ obscurorum virorum* which overthrew mediæval scholasticism.

It is not intended, nor indeed would it be very relevant, to discuss in this notice either the author's postulate of a new scientific Renaissance or the success of his assumption of the rôle of Ulrich von Hutten in killing his opponents with ridicule and sarcasm, but rather to comment *passim* on some of his statements and implications which, in relation to the matter in hand, are erroneous and misleading. We willingly concede to him at once that there is, on the subject of the nature and etiology of "feeble-mindedness," a very great amount of ignorance, much of which "parades as knowledge." But we hold also that much of this ignorance is fully recognised as such, even by many "scientists" and medical men who may not acknowledge the existence of a new Renaissance.

Professor Pearson, to judge from the leading title and the concluding sentences of his essay, professes to deal with the problem of feeble-mindedness in close connexion with Mendelism and the theory of "unit segregation" in the germ plasm, and strongly suggests to the reader, by the form of his general argument, that he is contraposing his own view that what he calls *mental defect* is but an extreme variation of normal mentality, exclusively to the Mendelian view that the mentally defective form a differentiated species. He refers, on p. 8 of his paper, to "two fundamentally divergent schools" which are marked by this contraposition of view; and we may, perhaps, correctly infer that these two schools are those that are known as the Biometrical and the Mendelian respectively. But, in the process of treating the questions of the definition and detection of mental defect and of legislative control of the mentally defective, he tacitly assumes that all the scientifically ignorant persons with whom he is dealing are Mendelians and therefore believe that mentally defectives are a differentiated species owing to the absence of a unit-character in the germ-plasm. He states, indeed, dogmatically, that "this theory of a differentiated class has taken root and is leading to complete distortion of the perspective in regard to the mentally defective," and infers that the new Commissioners are thus inevitably faced with the attempt to solve the whole problem of the nature and origin of mental defect. "Surely," he asks, after giving this misleading representation of the real case on the other side—"surely without adequate knowledge as to the nature, the definition, the treatment and the source of feeble-mindedness, could the State ever have legislated? If we are going to segregate the mentally defective for life we must, of course, have clear ideas of how it is differentiated physically and psychically from the normal child. This problem must press heavily on our new Commissioners, and it will be intensely interesting to see what they will make of it."

Now in so far as Professor Pearson has attacked only Mendelian doctrines in relation to these questions we grant him full success. But his victory seems quite otiose. Mendelism has really nothing to do with the practical side of the question that he is raising, and seems rather to have been dragged into this paper, which is directed mainly against "scientists and scientific men" other than Biometricians, somewhat as a cock-shy. As a matter of fact, the notion of a rigid line existing between the feeble-minded and the normal does not underlie existing legislation, nor does it affect practical action. It has never been proposed to segregate anyone "for life" under either the new or the old Act, or to segregate anyone at all on the ground of any mental defect which should or could be rigidly defined. Still less has the question of segregation been based on any theory, biological or other, of "nature," "causation," or "heredity." Persons are placed under care and control when they can be shown by their conduct to be incapable of protecting themselves or of abstaining from doing harm to others; and in all cases the inference of "insanity" or "mental defect" is essentially based, as Dr. Mercier has so persistently made clear, on observation of *conduct* in each case. This is quite evident in the so-called and mis-called "definitions" in the Mental Deficiency Act, which are really general *descriptions* of the groups of

persons who need care and control. Unless Professor Pearson contends that without an accurate knowledge of the source, nature, definition, and treatment of insanity, all legislation has been and is absurd, his general strictures on the fatuousness of those who would control such mentally defective persons as do not come within the four corners of the pre-existing Lunacy Laws are quite irrelevant. He disregards the fact that, in the case of each person whom it is proposed to segregate, the diagnosis is and must be based primarily and mainly on the careful clinical observation of conduct, and on a study, as far as possible, of the history of the case.

The employment by Professor Pearson of the word "mental" with reference only to the "intelligence" in contrast with the general practice of psychologists, who speak of the intelligence as but one expression or "faculty" of "mind," is, perhaps, the most important justification of the description of this pamphlet as misleading. It is quite clear to all those who have any practical experience of the "mentally defective" from the medical or teaching point of view that no mere testing of the intellectual faculties can suffice to decide on the necessity or desirability of interfering with the liberty of any person. The term "mentally defective" includes, of course, reference to what are generally recognised as the *mental faculties*, and is used in this context to denote such persons as give evidence by their conduct of their incapacity to lead a free life without harm to themselves or others; and each case must be carefully studied and dealt with without any necessary reference to problematic questions as to its exact mode of origin. In fact, the terms "mental defect" and "insanity" are used in practice to indicate recognisable characteristics of certain groups of persons without any necessary implication of a definite theory as to the nature and origin of such characteristics. Professor Pearson himself, although urging that those whom he calls (though without defining them) "true mental defectives" form only a small part of the feeble-minded who may need segregation, holds that such mental defectives are but extreme cases of the "normally minded," and proposes to denominate the whole group of those needing segregation as "social inefficient." We have no quarrel with this term; the real reason, as we have said, for segregating "mental defectives" and lunatics is, as a rule, a question of conduct primarily and of their mental state secondarily, and this comes much to the same thing as determining how far they are so "socially inefficient" as to need care and control. But we do not think that the term "social inefficiency" is likely to be helpful in the further direction of diagnosis or the standardisation of judgments in this connexion.

The prime importance of the clinical study of the individual is indicated in the provisions of the recent Mental Deficiency Act as it is also in the Lunacy Acts. Whatever may be the various views held by biologists and psychologists as to the nature and origin of what is conventionally called "mental defect," no practical measures are or should be based primarily on such considerations; nor is there any necessity for discovering, even were such discovery practicable, any sharp line between the various groups into which it is convenient to divide the subjects of such defect from one another and from the "non-defective."

Professor Pearson seems further to imply, though he does not explicitly state, that the most

important object of the new legislation as regards the "mentally defective" is to segregate them in order to prevent their reproduction. If this were the case there might be some justification for his contention that all legislation of this kind should be based on accurate scientific knowledge regarding the hereditary transmission of the defect in question and of the mode of such transmission. Now, it is generally believed that much feeble-mindedness is "the result of heredity." Indeed, Professor Pearson says categorically that it is "absolutely certain that feeble-mindedness runs largely in definite stocks." What should be asserted is rather that observation indicates a much greater probability of offspring with marked mental defect being born of parents with similar defect than of those not so characterised. This belief is based only on accumulative observation of large numbers of cases; but the evidence so obtained is massive. In view, however, of the fact that there are frequent instances of cases of very marked mental defect arising in families of all social grades in which at least no near ancestral traces of such defect are discoverable, it should be borne in mind that, though in such cases the defect may be equally inborn and transmissible to descendants as in the others, no practicable legislation could prevent their appearance. Reference to the Report of the Royal Commission on the Care and Control of the Feeble-minded (1908) shows that considerations such as these led to the recommendation of segregation of certain mentally defective persons on the primary ground of their being harmful to themselves or to others, independently of the question of transmitted defect, although the apparently great frequency of such transmission was taken into consideration as indicating an incidental benefit to society which would probably follow on such segregation. It is clear that even should this additional benefit be admitted as certain, the question whether the transmissible defect was a "specific differentiation" or an "extreme variation of normal mentality" would be of no importance from a practical point of view.

It appears to us that Professor Pearson has not in this paper chosen a happy illustration of his initial contention, or duly justified his arraignment of those scientists and medical men who do not regard the biometrical method as the master key to all biological studies. He has failed to show that existing experience in the detection of cases of "mental defect," or, if he will, of "social inefficiency," is not sufficient to justify such segregation as is now practicable and seems desirable; nor has he indicated any method whatever for "standardising judgments as to the grade of social inefficiency which shall involve segregation."

A Clinical Study of the Serous and Purulent Diseases of the Labyrinth.

By Dr. ERICH RUTTIN, Privat-docent, Otological Clinic, University of Vienna. With an Introduction by Professor Dr. VICTOR URBANTSCHITSCH. Authorised translation by HORACE NEWHART, A.B., M.B., Instructor in Otology, University of Minnesota. With 26 figures in the text. London: W. Heinemann. Pp. 232. Price 8s. 6d. net.

Dr. Ruttin, who is well known especially to the younger members amongst the aural specialists of America and England, has produced quite an interesting monograph on diseases of the labyrinth within the limitations laid down by the title. He classifies the effects of suppurative middle-ear

disease upon the labyrinth as (a) circumscribed labyrinthitis, (b) diffuse serous secondary labyrinthitis, (c) diffuse purulent manifest labyrinthitis, and (d) diffuse purulent latent labyrinthitis. According to Dr. Ruttin the diagnostic border-line between these conditions is usually fairly marked, yet it is purely and simply one of degree; and one feels inclined to ask in regard to (b), Why "serous"? That the suppurative condition present external to the labyrinth has not penetrated does not seem an adequate reply.

In discussing the reactions of the "fistulates" he finds that Valsalva's method of auto-inflation used simultaneously with the air compression will enable the fistula symptom to be obtained in cases where there is a very free Eustachian tube, when otherwise the test would fail. Dr. Ruttin analyses the cases of labyrinthitis, 108 in all, which are given *in extenso*, and occupy a liberal half of the brochure. This analysis of his cases is the most interesting part of the work, though a considerable amount of information is to be derived from a perusal of the section entitled "Therapy or indications for the radical and labyrinthine operations." When considering the large number of cases seen in the Vienna clinics we must bear in mind three factors—the small number of hospital clinics in Vienna, the large area from which their *clientèle* is drawn, and the ignorance of so large a proportion of the poor of the seriousness of ear disease. Consequently in England far fewer labyrinthine cases, both in proportion to other cases as well as actually, are seen in any hospital.

A Brief Review of the Work of Donders and the Progress made during the Last Fifty Years.

By ERNEST CLARKE, M.D., B.S. Lond., F.R.C.S. Eng., Senior Surgeon to the Central London Ophthalmic Hospital; Consulting Ophthalmic Surgeon to the Miller General Hospital. London: Baillière, Tindall, and Cox. 1914. Pp. 114. Price 2s. 6d. net.

It was a happy thought which prompted Dr. Ernest Clarke to celebrate the jubilee of the publication of Donders's "Anomalies of Accommodation and Refraction of the Eye." As a compliment his brochure has been published first in Dutch, though the original work never appeared in the author's native language.

So far as the gratitude of the public for the inestimable benefits derived from the relief of discomforts and diseases due to eyestrain is concerned it would be difficult to praise the work of Donders too highly. As an original thinker, however, he has, if anything, been overpraised. It is an interesting psychological fact that originality is often divorced from practical utility. As has been said elsewhere, "If the architect is greater than the artificer, Young must be accorded a higher place in the roll of fame than Donders, whose rôle as a founder of modern ophthalmology none will dispute." Thomas Young first enunciated, *inter alia*, the principle of the "total refractive index" of the lens, obtained the data for measuring the curvature of the cornea, discovered astigmatism, observed the common occurrence of the hypermetropic type of refraction, and proved that accommodation is due to a change in curvature of the lens. Yet he failed to observe, or was not sufficiently interested to follow out, the extremely important practical bearings of his discoveries. It was reserved for Donders to fulfil this duty, and he

did it in a manner which left little more to be said on the subject. Dr. Clarke's review of the progress made during the last 50 years shows that the work done has been almost entirely confirmatory. There is a striking contrast between the severe style and carefully reasoned exposition of Donders's great work and the dogmatism and optimism of much of Dr. Clarke's eulogy. One cannot imagine Donders writing, "There is no functional trouble that may not be due to eye-strain." But in spite of these errors of enthusiasm there is much that is praiseworthy in the book, and not least we commend Dr. Clarke's observations on presbyopia. After all, Donders has erected his own monument—*aere perennius*.

Leçons sur la Lithiase Biliare.

Par A. CHAUFFARD. Avec 20 planches hors texte. Paris : Masson et Cie. 1914. Pp. 244. Price 9 francs.

THIS volume contains the substance of a series of lectures on gall-stones given by the author in his capacity as professor of clinical medicine in the Faculty of Medicine of Paris. The contents have the freedom of the clinical lecture, which allows the speaker to deal with certain aspects of the subject which appeal especially to him, without that encyclopædic attention to details which is required in a systematic text-book. So, too, we find but few references to other works and papers on the subject, the author's own experience supplying the greater part of the material of the volume.

In spite of the great multiplication of text-books there is still a place for clinical lectures, and this work will interest any reader who has occasion to devote attention to the subject. Some excellent plates of gall-stones, and of the normal and pathological anatomy—both gross and microscopic—of the biliary tract illustrate the subject. The author has included his inaugural lecture on the stability of morbid types and the conditions under which they vary, and though it is little germane to the main subject of the book, it is full of interest.

Elements of Surgical Diagnosis.

By Sir ALFRED PEARCE GOULD, K.C.V.O., M.S. Lond., F.R.C.S. Eng., Surgeon to the Middlesex Hospital. Fourth edition, revised and enlarged by the author with the assistance of ERIC PEARCE GOULD, M.A., M.Ch. Oxon., F.R.C.S. Eng., Radcliffe Travelling Fellow. With 10 radiographic plates and other illustrations. London, New York, Toronto, and Melbourne : Cassell and Co., Limited. 1914. Pp. 723. Price 10s. 6d. net.

ABOUT 11 years have intervened between the appearances of the third edition and this, the fourth, edition of Sir Alfred Pearce Gould's work. Thirty years have elapsed since the work first appeared, and any medical book which lasts 30 years must have great value. A comparison of the present issue with the form of the work at its first appearance will show how many and great are the changes that have taken place in surgery during those 30 years. The main alterations in this edition deal with abdominal surgery, and here the changes have been great, so that every chapter has been revised. The Basle nomenclature is being extensively employed in many schools of medicine, and therefore we think that the authors have done wisely in adding in brackets the names authorised by the Basle Congress after the older anatomical terms.

It is hardly necessary to say that diagnosis cannot be taught by a book, but must be learned in the ward and in the out-patient room; but a book such

as this will give invaluable aid to the student by telling him what he should look for and what signs and symptoms are important. There are many works on diagnosis, but we know none likely to be of greater assistance to the student than this.

Quain's Elements of Anatomy.

Edited by Sir EDWARD ALBERT SCHÄFER, F.R.S., Professor of Physiology and Histology in the University of Edinburgh; JOHNSON SYMINGTON, M.D. Edin., F.R.S., Professor of Anatomy in the Queen's University of Belfast; and THOMAS HASTIE BRYCE, M.A., M.D. Edin., Professor of Anatomy in the University of Glasgow. Eleventh edition. In four volumes. Vol. II., Part II.: Splanchnology. By J. SYMINGTON, M.D., F.R.S. London, New York, Bombay, Calcutta, and Madras : Longmans, Green, and Co. 1914. With 349 illustrations, many of which are coloured. Pp. 392. Price 10s. 6d. net.

In this volume an account is given of the digestive, respiratory, and genito-urinary systems, as well as of those structures grouped together as the ductless glands. A separate chapter dealing with the peritoneum is contributed by Mr. P. T. Crymble, of Belfast.

Probably the most conspicuous new feature of the eleventh edition is the greater attention given to topographical anatomy as studied in sections of the frozen body. With this type of work no one is better qualified to deal than Professor Symington, and the many new illustrations depicting such sections of the body are testimony to the perfection of his methods, and of the value that he attaches to this mode of studying anatomy. We are glad to see reproduced here many of the illustrations prepared by Professor G. D. Thane and Sir R. J. Godlee for the Appendix to the tenth edition. The text has been brought well up to date, and Professor Symington's widespread researches are evidenced in every section of the work.

The whole forms a worthy complement to those volumes of the eleventh edition already published, and while maintaining the best traditions of the earlier issues of Quain's Anatomy it is also well abreast of the times. The B.N.A. terminology has been used throughout.

LIBRARY TABLE.

Insanity in Everyday Practice. By E. G. YOUNGER, M.D. Brux., M.R.C.P. Lond. Third edition. London: Baillière, Tindall, and Cox. 1914. Pp. 180. Price 3s. 6d. net.—This small book, first published in 1904, has now reached a third edition. It was written to acquaint the general practitioner with the broad outlines of insanity within the compass of a brief treatise. The size of the book, indeed, necessitates that the outlines should be brief, and we are in such cases always a little doubtful whether the aid of the epitome and the diagram may not lead the reader to look in the patient for that which clinically he will not find. However, as in most cases the practitioner is called upon merely to certify, some slight knowledge of the manifestations of mental disorder is all that is required. From this book he will get so much, and in addition useful hints as to how to meet and examine a patient. He may also learn a string of some of the titles which may be affixed to a disorder if he is called upon for a diagnosis, and that in psychiatry is much.

Outlines of Theoretical Chemistry. By FREDERICK H. GETMAN, Ph.D. (Johns Hopkins). New York: John Wiley and Sons. London: Chapman and Hall. 1914. Pp. 467. Price 15s. net.—In the main this book deals with chemico-physics, but the

author identifies theoretical chemistry with physical chemistry. The title at first sight might be taken to mean that the book would deal with such subjects as molecular constitution, combining weight, law of multiples, equivalents, and so forth. Such matters are, however, dismissed in the opening chapter of 20 pages on fundamental principles, which is succeeded by one on the classification of the elements, and by others on the electron theory, gases, liquids, solids, and solutions, until in Chapter VIII. we enter into the real domain of chemico-physics with a section on osmotic pressure. Association, dissociation, thermo-chemistry, electrolytic equilibrium, and so on, follow in satisfactory sequence. This plan is novel and there is no objection to it on educational grounds. On the whole, the book meets the student's needs by presenting the subject in intelligible order, but in places the reader possessing only moderate mathematical attainments will come up against difficulties."

The One Outside. By MARY FITZ-PATRICK (Mrs. W. C. Sullivan). London: Munsel and Co., Limited. 1914. Pp. 245. Price 3s. 6d. net.—The author of this book, the wife of a well-known medical man, has the true spirit of the short story teller. She writes with distinction, obtains her effects with artistic brevity, and displays knowledge both of human nature and of the particular environments in which she places her different characters. The first story in the book, which gives the title to the collection, is perhaps the best. Surely only in Ireland could a man desert his wife for 16 years and then return as if the exploit was a reasonable one—as if economy and fidelity during the absence atoned for the sin. However, given the situation the inevitability of the tragedy that followed is well conveyed by Mrs. Sullivan in a moving little narrative. "The Doctor's Joke," which contains, by the way, a lapse in peerage lore, is merry and bright and a little trivial, conveying the impression that the author works best in a sad atmosphere, an impression confirmed by reading "A Daughter of France" and "The Little Sister," where the political conditions of Ireland again provide a background for the drama. We hope this book will meet with the reception which its literary craftsmanship merits.

Introduction to Modern Inorganic Chemistry. By J. W. MELLOR, D.Sc. With illustrations. London: Longmans, Green, and Co. 1914. Pp. 684. Price 4s. 6d.—The success of his "Modern Inorganic Chemistry," which was favourably reviewed in our columns of Feb. 22nd, 1913, has induced Dr. Mellor to write an introduction to this book, which brings the student from a state of knowing nothing of the science to knowing something. And in making this step he has the advantage of being grounded on correct foundations. A clear survey of facts is presented, upon which a generalisation of principles is calculated to dawn. It is interesting to notice how gradually the author approaches technicalities. The opening chapters show a charming simplicity of narrative; the closing ones begin to assume that a groundwork has been gained. The method is good and well executed.

MISCELLANEOUS VOLUMES.

Human Derelicts, edited by Dr. T. N. KELYNACK (London: Charles H. Kelly. 1914. Pp. 341. Price 5s. net), consists of a number of medico-sociological studies for teachers of religion and social workers. After a "preface" by the editor and a "foreword" by Sir Thomas S. Clouston, Dr. Robert Armstrong-Jones writes of Mental Derelicts; Dr. F. R. Percival-Taylor of Idiots and Imbeciles;

Dr. T. Claye Shaw of Lunatics; Dr. R. L. Langdon-Down of the Epileptic; Dr. Mary L. Gordon of the Inebriate Derelict, the Problem in Relation to Women, and Dr. G. Basil Price of the same problem in relation to men; Mr. James Devon of the Criminal Derelict; Dr. R. F. Quinton of the Recidivist; Dr. James P. Sturrock of the Mentally Defective Criminal Derelict; Dr. Charles H. Melland of the Vagrant; Dr. Helen M. Wilson of the Prostitute; Mr. E. Musgrave Woodman of Senile Derelicts; Dr. C. A. Adair Dighton of the Derelict Deaf; Mr. T. Herbert Bickerton of the Derelict Blind; Dr. John W. Ballantyne of Pre-natal Influences of the Human Derelict; and Dr. C. W. Saleeby of Eugenics and the Human Derelict. The book aims at providing all workers engaged in enterprises striving for human betterment with a concise and reliable presentation in non-technical language of such essential facts, guiding principles, and effective processes as are likely to be of assistance. Seeing that an "under estimate" by Sir Thomas Clouston of the derelicts of various kinds in Great Britain places them at a million, the national importance of the problem dealt with in this book by the various essayists from the standpoint of their own specialties is obvious. Medical officers of health, school medical officers, tuberculosis officers, and medical officers of the other public medical services are likely to find much interesting and serviceable information herein.

A very wide ground is covered by Dr. ELIZABETH M. SLOAN CHESSEB'S book, *Physiology and Hygiene for Girls' Schools and Colleges* (London: G. Bell and Sons, Limited. 1914. Pp. 231. Price 2s.). Chapters I. to XII. inclusive deal with the elementary anatomy and physiology of the human organism in quite sufficient detail for examination purposes, with personal hygiene, domestic sanitation, home decoration and furnishing, dietetics and cooking, clothing, physical culture, nursing and the sick room, first aid and domestic medicine, and the care of the child, all of which offer a wide field of study for girls, and one concerning which a certain amount of knowledge is now recognised as desirable and even necessary for the women of the modern race. —Notwithstanding the acknowledgment of the desirability of a suitable instruction of our youth of both sexes in the problems of sex, but graduated according to the needs and degree of development of boys and girls, we are entirely unable to commend two books on the subject now before us—viz., *Ten Sex Talks to Boys 10 Years and Older*, and *Ten Sex Talks to Girls 10 Years and Older* (London and Philadelphia: J. B. Lippincott Company. 1914. Pp. respectively 187 and 193. Price each 4s. 6d. net). We fully appreciate the obvious sincerity of their author, Dr. I. D. STEINHARDT, and can only say that we cannot approve of his method. Each book contains not only material suitable for young children of either sex, but also much that is suited only for those in whom adolescence is well advancing, and yet more that should be reserved for the approach of matrimony. To put this all together into the hands of a boy or girl of "ten years and older" would be, in our opinion, monstrous. For instance, the detailed instruction about syphilis and gonorrhoea, with the half-tone of a syphilitic infant which appears in both books, is totally unsuited not only for children but for most girls and young men. A general knowledge of the dangers attendant on impure intercourse is perhaps desirable for young people, but to introduce them to a very pathological venereal museum is as unnecessary as it is repellent. The author seems simply to have substituted the horrors of a hell in this life for those of a hell hereafter as a method of terrorising into moral behaviour, and there is no reason to suppose that the one will prove one whit more efficacious than the other has done.

The *Writers' and Artists' Year Book* aims to serve authors and contributors to journalism by giving them the necessary information to enable them to place their articles to the best advantage. New features in this edition are an alphabetical index of editors and an article on publishers' agreements, describing the four main kinds of agreement between author and publisher, with a specimen form.

JOURNALS AND MAGAZINES.

Brain: A Journal of Neurology. Edited by HENRY HEAD, M.D., F.R.S. Vol. XXXVII., Part I., September 1914.—The current number of *Brain*, although it consists of two papers, really constitutes an important monograph on the clinical and pathological aspects of syphilis

of the nervous system considered in the light of the Wassermann reaction and the effect of treatment by salvarsan. The first paper, by Dr. Henry Head and Dr. E. G. Fearnside, is devoted to the clinical aspects of syphilis of the nervous system. It is claimed in this paper, and the proof adduced certainly seems convincing, that all manifestations of syphilis of the nervous system are consequent on the direct activity of the spirochæta pallida. This organism, it is asserted, resides and manifests its activity either in the supporting tissues of the nervous system, fibrous or vascular, or in the nerve elements themselves. We thus have two distinct classes of diseases of the nervous system the result of syphilis—the one parenchymatous, and therefore a true disease of this system; the other interstitial, and therefore strictly speaking only a nervous disease in virtue of the effects produced upon the nervous structures by pressure or other effect upon its elements or through interference with its blood-supply. In the former are such diseases as general paralysis of the insane and tabes dorsalis—often spoken of since the time of Fournier as parasyphilitic conditions; in the latter such conditions as meningo-myelitis, gummatous meningitis, and isolated cranial nerve paralysis, generally spoken of as syphilitic conditions. This distinction carries with it a very important consequence, for whereas the former class is not amenable to treatment by salvarsan, the drug being unable to reach the organism, the latter does yield to treatment if only treatment is resorted to early enough and with sufficient energy.—Dr. James McIntosh and Dr. Paul Fildes contribute the second paper, which compares the lesions of syphilis and parasyphilis. It explains the reason and mode of invasion of the nervous system by the organism—the affection of the interstitial and vascular tissues in the one group and the parenchymatous nature of the lesion in the other, although the symptoms in each group are due to interference with the functions of nervous structures. It also seeks to show that, although in the parasyphilitic diseases the affected neuron does degenerate to its limits, yet this degeneration does not spread from one neuron to another, the progressive character of the disease being the result of the continued presence of the organism. Treatment is effective in combating interstitial syphilis of the nervous system, but to be successful must be used early and often, and it is therefore very important to familiarise one's self with early indications of such conditions, for unless treatment is early resorted to the nervous structures are apt to be irremediably damaged as a result of the affection of the interstitial tissue. Parenchymatous syphilis, on the other hand—parasyphilis—is not influenced by treatment, as drugs in the blood stream are not able to pass into the nervous substance to destroy the spirochæta. If salvarsan should succeed in penetrating into the brain or cord it produces such toxic symptoms as to make its use impossible. In the opinion of the writers it consequently follows that "the intrathecal injection of salvarsanised serum or of neosalvarsan in its present form can have no permanent vogue."

Annali dell' Istituto Maragliano. Vol. VII. Fasc. 6. Oct. 31st, 1914. Piazza del Popolo 11, Genoa.—This number contains two papers only. The first, by Dr. Verdoliva, is a clinical and experimental contribution to the study of infection by the *M. catarrhalis* of Pfeiffer. He obtained from the blood of patients a culture of this micro-organism which, when injected into guinea-pigs and mice, produced lesions characteristic of influenza. His experiments point to the conclusion that this disease is especially amenable to energetic vaccine therapy, both curative and preventive, and he calls attention to the statement of L. Jehle, who, in an epidemic occurring in infants in whom the micrococcus was found in the pharyngeal secretion, was able to cut short the attack in 24 hours by instilling pyocyanase into the nasopharyngeal cavity. The other communication is by Dr. A. Bertolini on the expectoration in pneumonia. Among other interesting observations we may mention that the crisis of the disease was not accompanied by any "crisis" in the sputum, and especially that there was no marked change in the amount of chlorides contained in it. With regard to the albumin reaction he found that without being an absolutely specific index in pulmonary tuberculosis it constituted a valuable diagnostic element when taken in conjunction with other clinical evidence.

Reports and Analytical Records

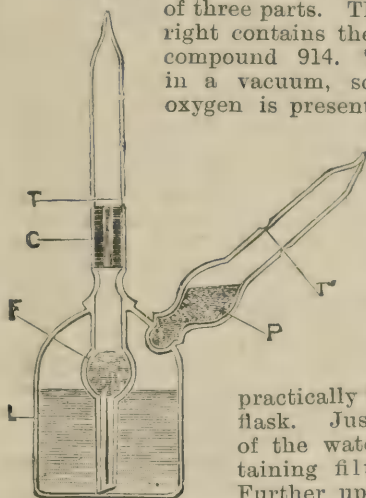
FROM

THE LANCET LABORATORY.

AMPSALVS.

(MESSRS. BRESILLON AND CO., GAMAGE BUILDINGS, HOLBORN, LONDON, E.C.)

THE ampsalvs provides an apparatus for the instantaneous preparation of an aseptic solution of novarsenobenzol (Ehrlich's 914) and at the same time for the aseptic filtration of this solution and for its subsequent aseptic withdrawal into the injection syringe. As will be seen from the accompanying illustration, the apparatus consists of three parts. The bulb tube on the right contains the organic arsenical compound 914. The compound is in a vacuum, so that no air or oxygen is present which can have



a deleterious action, thereby increasing its toxicity. The flask itself, marked L, contains sterilised distilled water. The vertical tube F is submerged in this water to

practically the bottom of the flask. Just above the level of the water is a bulb containing filtering medium. Further up in this tube at C there is a rubber tube which

receives the nozzle of the syringe. It will be seen that the three parts of the apparatus are hermetically sealed. The procedure is not difficult. The ampoule P is broken at the point T where it has been filed somewhat deeply in the form of a ring round the tube. A steel stylet is then introduced into the tube and its lower bulbous end broken. The novarsenobenzol thus falls into the water and rapidly dissolves. Next at the point T on the vertical tube is a similarly filed indentation. This is broken, leaving a small portion of the rubber tube projecting. The nozzle of the syringe is then inserted into this open end and the aseptic contents withdrawn for injection. In a few words, this well-contrived apparatus ensures the use of the drug in an unimpaired form and in an aseptic solution. The advantages claimed for 914 in the treatment of syphilis are that the injections are not made with so complicated a technique as in the case of 606 and more concentrated injections of 914 can be used as they are not hæmolytic. Moreover, 914 does not coagulate the proteins and forms no precipitates with blood.

IALINE.

(MESSRS. BURT, BOULTON, AND HAYWOOD, LIMITED, 64, CANNON-STREET, LONDON, E.C.)

We have carefully examined ialine in the laboratory, and we are able to substantiate completely the claims made in regard to it. It is a perfectly clear dark brown fluid which dissolves in all proportions in water to an equally clear fluid. We had no difficulty in splitting it up into fatty acids and cresols. The separated cresols measured exactly

50 per cent. by volume, and judging from their iodine combination value they show a higher germicidal efficiency than pure phenol itself. The indications were in favour of a carbolic coefficient well over 3. The preparation strikes no colour with phenolphthalein, which gives a deep red with free alkali. As an effective detergent and antiseptic this preparation will be appreciated in medical and surgical practice.

(1) UROSOLVENE; (2) IODATOL; AND (3) SANUSIN.

(THE BRITISH DRUG HOUSES, LIMITED, GRAHAM-STREET, CITY-ROAD, LONDON, E.C.)

1. Urosolvane is the name given to a combination of hexamine and lithium benzoate. This latter salt is regarded as of greater therapeutic value than the sodium acetate which occurs in the hexamine compound known as cystopurin. The formula is based on the antiseptic action of hexamine in the urinary passages which, as is well known, is increased by an acid reaction, the assumption being that formaldehyde is thus liberated. Lithium benzoate produces the desired acidity. The claims of this compound in regard to its action as a solvent of uric acid are well worth attention. 2. Iodatol is an iodised oil in which while the iodine is available it is not actually in a free state. It presents a method of administering iodine effectively in those cases where the iodides are badly borne. Iodatol is prepared in three strengths containing 10, 20, and 25 per cent. of iodine respectively. It is offered as an efficient substitute for the German preparation iodopin which has been used as an injection in the treatment of syphilis. 3. Sanusin is contained in a special form of suppository, which undoubtedly has advantages. It is known as the sempule, which has already been described in our columns. The formula of sanusin is an excellent one for hæmorrhoids and certain vaginal affections, inasmuch as it consists of a combination of resorcin, boric acid, balsam of Peru, and zinc and bismuth carbonate. It is an antiseptic, soothing, and healing application.

AZOULES.

(MESSRS. ALLEN AND HANBURYS, LIMITED, 48, WIGMORE-STREET, LONDON, W.)

These are handy little glass tubes containing ligatures and sutures of various descriptions already sterilised. The series before us includes twisted silk No. 1, silkworm gut, plain catgut size 2, plain iodised catgut size 0, 20-day tanned iodised catgut size 0, chromic catgut No. 0, and blood-vessel suture with needle. Of these we have submitted specimens to culture and bacteriological examination, with negative results. The azoules should prove useful to the surgeon, and they have the advantage, at any rate from the patriotic point of view, of being prepared by Messrs. Allen and Hanburys at their laboratories in this country.

SCOUT'S SOAP.

(EDWARD COOK AND CO., LIMITED, BOW, LONDON, E.)

This soap has been specially prepared for the use of the troops at home and abroad. According to our examination the ingredients occur in a proportion which is calculated to secure not only detergent but antiseptic action also. The fatty bases are of vegetable origin. The soap is somewhat soft, is readily latherable, and quickly and effectively does its work. The antiseptic present is a well-known powerful one of the

camphor group showing considerable superiority as a germicide to carbolic acid. It is an excellent soap for washing slight cuts, bruises, and wounds.

DUBSTIC.

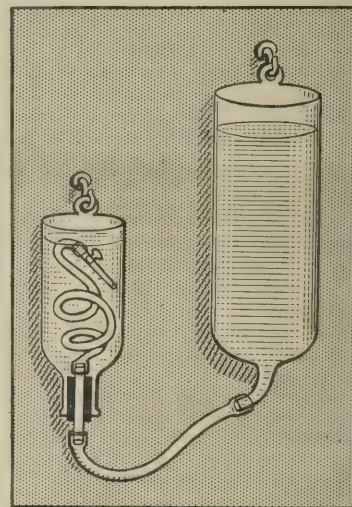
(THE STRAND CHEMICAL COMPANY, LIMITED, 83, CLERKENWELL-ROAD, LONDON, E.C.)

At the present time this preparation is likely to prove of distinct service. It consists of a stick of wax-like material containing a well-approved antiseptic which we identified. Rubbed on the skin, a greasy film is deposited which produces a feeling of suppleness, and it apparently prevents chapping and cracking. Moreover, it is most useful applied to the feet when marching. By the consistent application to the skin of some such preparation of this kind the soreness and blistering which is an annoying occurrence both in the saddle and in the boot would in many instances be avoided.

New Inventions.

AN ASEPTIC IRRIGATOR.

GENERALLY speaking, it is very difficult to keep the rubber tube and the cannula of an irrigator sterile. While this may be possible in a modern aseptic operation room, it is much less easy, or altogether impracticable, in the



consulting room of the practitioner and in those provisional operation rooms of which so many are now established in the neighbourhood of the battlefields. There one is obliged to give up the principles of the aseptic method and to resign oneself to antiseptic measures.

The modification here described of the ordinary irrigator makes it possible, even under unfavourable circumstances and with the help of simple means, to keep the cannula and the tube absolutely sterile, and to prevent infection of the hands of the operator by a non-sterile cannula. The accompanying illustration will elucidate the principle involved. Let the rubber tube of the irrigator pass through the opening of another glass reservoir (a bottle without a bottom may serve), but so that the tube, with the help of a cork and a piece of glass tubing, fits exactly in that opening. This second reservoir serves to hold the tube and the cannula, which, of course, must be provided with a cock when not used, and contains an antiseptic solution. The apparatus being a kind of syphon, it is clear that the brim of the second reservoir must be kept at a lower level than the surface of the liquid in the irrigator proper, otherwise the contents of the latter would not flow when the cannula is taken out for use.

University of Leyden. Professor Dr. E. C. VAN LEERSUM.

THE LANCET.

LONDON: SATURDAY, JANUARY 2, 1915.

Civil Medical Practice and the War.

WE are able to publish this week a communication which has been addressed by the War Office to the General Officers Commanding-in-chief of the several Army Commands, and which it will be seen bids fair to provide in a very effective manner for many of the difficulties that have arisen from the dislocation of medical practice following upon the calling up of the Territorial Force. These difficulties have been enumerated in THE LANCET on several occasions, and have formed also the subject of considerable correspondence. A letter from Sir DONALD MACALISTER, President of the General Medical Council, which will be found on page 43 of this issue of THE LANCET, shows how clearly the Council have seen the difficulties created, especially for general practitioners; and it shows also that the proposals of the Executive Committee of the Council to meet these difficulties have been accepted by the War Office.

The Army Council has now frankly recognised the inconvenience alike to the civil population and to the medical officers of the Territorial Force caused by the stationing of those officers in so many instances at a distance from their civil sphere of action; and in particular, of course, is that inconvenience present when the officers in question are general practitioners. As a matter of fact many members of the *à la suite* staffs of the Territorial Base Hospitals, being for the most part members of the honorary staffs of the big voluntary hospitals of the country, have been able to give part of their time to the civil duties which they had been discharging previous to the war; while in some of the Base Hospitals, in London at any rate, an application of the rota system has enabled the Territorial Medical Officers to fulfil double functions with some smoothness, though no doubt in many cases with great personal strain. But Territorial Medical Officers who are in general practice have seldom been able to exercise any supervision over the practices which they were suddenly called upon to leave, and undoubtedly the ensuing plight was often quite a grave one, both for the officers and for the community amongst which the regular work of their lives had been hitherto conducted. The War Office has met the position precisely by permitting such officers "to effect exchanges, direct or indirect, with Territorial Medical Officers in the new locality when possible." We do not know to what general extent this permission will ease the situation though a certain number of medical officers will

be glad to take immediate advantage of the concession; but where to effect these exchanges is not feasible the War Office also permits that "the places of medical officers not desiring to accompany their units may be taken by junior medical officers willing to take temporary commissions and serve with such units; the original medical officers being demobilised until the return of the units to their own localities, or until their services can be otherwise utilised there." By this arrangement a great increase in the flexibility of the Territorial Medical Service is at once introduced, and we trust that the officers of that service, when due cause exists, will not be reluctant to take advantage of the opportunity now available. After all, the condition of things which existed immediately after mobilisation of the Territorial Force has been complained of, and it will be somewhat unreasonable if no use is made of the remedy provided by the War Office. There will undoubtedly be a feeling of reluctance among the senior medical officers to confess any unwillingness to remain with the colours, but this is a feeling which should not necessarily be given way to. In the present state of the war, with its promise of long duration, a man's military duty to his country may be fully discharged by his remaining at civilian work, and it is of first importance to the country from a military point of view that the civilian health should be maintained. As a rule it is those very medical officers who are now offered a chance of temporary demobilisation whose presence is desired among their own people, and any medical officer of the Territorial Force who feels that it is his duty to return to his own locality, there to await further utilisation of his services, ought to be able to act in accordance with his conscientious conviction, and with no lurking sense that he has defaulted from a high patriotic standard.

In another column there will be found an abstract of an address delivered by Dr. NORMAN WALKER, the convener of the Scottish Medical Service Emergency Committee, at a recent meeting of medical practitioners in the Glasgow district. The Scottish Medical Service Emergency Committee, it will be remembered, was constituted for the purpose of assisting to meet the immediate difficulties in Scotland in regard to medical practice among the civilian population owing to the departure of practitioners upon military duty. The Committee took especial notice of the difficulties of general practitioners in the country, where in the case of absence the employment of a locum tenent is necessitated, as the distance between the houses of the patients prevented any practitioner from taking over the duties of another in the way that is possible among urban practitioners. The Committee is to be congratulated upon the direct manner in which it has tackled the situation in Scotland, while we hope that the many hardships in medical practice, which it was created to deal with, will be sensibly abated by the sympathetic attitude of the War Office. Dr. NORMAN

WALKER showed quite clearly, in an address which was obviously the outcome of personal knowledge, that the obtaining of locum tenents by general practitioners is difficult and expensive, and that the temporary transfer of patients to a local colleague may bring business complications undreamt of by the parties to some vague and generous arrangement for "looking after the practice while the doctor is away." The new arrangements sanctioned by the War Office should restore a good many practitioners to their practices, and should thus assist the Scottish Medical Service Emergency Committee.

A Judge on Professional Secrecy.

IN a recent issue we printed certain observations made by Mr. Justice AVORY in charging the grand jury at Birmingham, together with an expression of the opinion that the learned judge might not find himself in general agreement with the medical profession. He was dealing with the question of the maintenance of professional secrecy where its violation might assist the prevention or punishment of crime, and his views were enunciated with particular reference to the crime of abortion and to a prisoner who had been committed for trial at the Birmingham assizes upon a charge of murder. The committal had been made upon a coroner's inquisition only, for the magistrates had decided that the evidence attaching guilt to the prisoner was insufficient; and the judge's comments arose out of his sense that if one of the medical men who had attended the deceased woman, upon whom an illegal operation had been performed, had informed the police of the circumstances while she was alive, her evidence identifying the actual abortionist might have been secured. This would beyond question have been a very desirable result, and it is only the means by which Mr. Justice AVORY considers that it should have been obtained that we desire to comment upon. We have already given his observations in full,¹ and we now only quote two passages. He said: "Under circumstances like those in the present case, I cannot doubt that it is the duty of the medical man to communicate with the police or with the authorities in order that one or other of those steps may be taken for the purpose of assisting in the administration of justice. No one would wish to see disturbed the confidential relation which exists, and which must exist, between the medical man and his patient in order that the medical man may properly discharge his duty towards his patient; but there are cases, of which it appears to me that this was one, where the desire to preserve that confidence must be subordinated to the duty which is cast upon every good citizen to assist in the investigation of a serious crime." Further, Mr. Justice AVORY said, after alluding to an opinion² to which he had formerly

been a party with another counsel when he was at the Bar: "It may be the moral duty of the medical man, even in cases where the patient is not dying or not unlikely to recover, to communicate with the authorities when he sees good reason to believe that a criminal offence has been committed." It is this general statement of a medical man's duty to violate professional confidence in circumstances which do not appear to us to be absolutely compelling from which we dissent, although with full appreciation of the importance of preventing or punishing crime, and with a particular detestation of the crime of the abortionist. We are constrained to place in the balance against these sentiments the value which we set upon a man's honour in general and upon professional honour in particular, and we also claim weight for the results attained by the maintenance of such honour at its highest standard. In the special phase of professional honour under consideration—the keeping of the patient's secret, whether a guilty secret or not—there is this point to be borne in mind. The medical man is there to save the patient's life and to restore the patient to health, if he can; not to aid the police by playing the detective—a part which might be quite congenial in any other circumstances. If he once reveals his patient's secret, with, be it remembered, the practical certainty that his doing so will become publicly known, he will destroy belief in his professional discretion and in his personal desire to deserve confidence, wherever his conduct is read or spoken of; and any general adoption of his course of action would diminish or destroy all trust in his profession everywhere. So wide a development of this distrust among the public would have the result that a guilty patient, and particularly the victim of the abortionist (and sometimes other patients with no fault of their own to hide), would conceal illness with fatal results, or with no less serious consequences would seek unqualified treatment, perhaps at the hands of the originator of the mischief. At the worst the maintenance of professional secrecy can only have the consequence, admittedly an undesirable one, of allowing an uncertain number of abortionists a somewhat extended amount of rope before their lawful fate overtakes them. Its violation, by destroying the confidence of patients in their medical advisers, would affect the welfare of a large class of persons who otherwise would seek medical aid in time of physical need.

In thus considering Mr. Justice AVORY's observations we are primarily dealing with what was in his mind—namely, the crime of abortion. If, however, we try to suggest principles to guide medical men, they must be more or less of general application. The circumstances of each particular case must influence the individual decision, and cases will vary infinitely, but some general rule must be applied as far as possible, whether the patient is suffering from the effects of abortion or, for

¹ THE LANCET, Dec. 19th, 1914, p. 1430.

² The opinion in question was received about 18 years ago, in reply to a stated case submitted by a committee of the Royal College of Physicians of London, from Sir Edward Clarke and Mr. Horace Avory.

example, of rape or attempted self-murder. The victim in one of these latter instances may desire to shield the criminals or may be anxious for personal reasons to avoid publicity, quite as reasonably as may the woman who has evaded motherhood. In seeking for a general principle applicable to the circumstances indicated by Mr. Justice AVORY, we do not doubt that the duty is cast upon the medical man of bringing a criminal to justice by every legitimate means, and that he should use his influence to obtain his patient's consent to his informing the police. In this he may obtain the aid of any relations or friends of the patient who may be aware of the illness and its cause. He may tell the patient that participation in the criminal act will probably be condoned, but we must not forget that, where abortion is in question, the woman will have been guilty of an offence, as well as naturally desirous to avoid public exposure. Let us here suppose that she refuses to face exposure, and entreats her medical attendant not to "give her away," reminding him that she consulted him, relying upon his professional honour. It is difficult to imagine any medical man, except under possible but very unusual conditions, setting the law in motion in such circumstances, or any member of his profession blaming him for not doing so; and we fail to see any great difference between a case where consent is withheld by the patient, and one where it almost certainly would be refused if the question were asked. The case before Mr. Justice AVORY was of a not unusual character. If the deceased, knowing herself to be dying and without hope of recovery, had told anyone the name of the abortionist, her words so spoken could have been given in evidence against the person implicated, so that the failure of the medical man to inform the police in time did not necessarily imply that justice would be defeated. That this defeat, in fact, followed provoked the observations from which we dissent, and which are carried so far that even in the case of a patient about to recover the medical man is assigned a moral duty to betray a patient's confidence. It is from so general a statement of obligation that we differ from Mr. Justice AVORY. Circumstances may occur in which without a patient's consent a medical man may feel it his duty to divulge that which the patient would prefer to keep hidden, but as a general rule the secret must be respected, and the proverbial exception does not seem to have arisen in the instance under comment. Such exception would arise if neglect to inform the police would increase the patient's danger, as where an attempt at poisoning is suspected; or if the patient, being unable to form a sound judgment, would clearly be benefited by the revelation. As a rule the test must be the probable benefit of the patient from the point of view of a medical man to whom is entrusted the care of the patient's health. A duty to the public may exist, but in the peculiar circumstances in which the medical man exercises

his profession duty to the patient must sometimes override it.

We may allude here to words often quoted in connexion with professional secrecy which were uttered by the late Lord BRAMPTON in the course of his summing up in the civil trial of *KITSON v. PLAYFAIR*. Mr. Justice HAWKINS, as he then was, appears to have held an opinion opposed to that uttered by Mr. Justice AVORY, and one in which he also differed, or claimed to differ, from certain medical witnesses who had appeared before him, putting the case in favour of inviolability higher than they had done. As far as Mr. Justice HAWKINS's observations on this occasion go they are those of a judge of great experience in the trial of crimes. Their effect is that there is no obligation upon a medical man to betray to the police the confidence of a patient whom he suspects of having had abortion procured upon her. Criminal abortion was not in question in the case of *KITSON v. PLAYFAIR*; nor must Lord BRAMPTON's words be treated as a laying down of the law on the subject, or as anything more than the *obiter dicta* of a judge upon a topic not strictly relevant to the case before him, but indicating how he would have regarded a particular course of conduct in the exercise of professional discretion. Upon occasions, in the interest of his patient or in the maintenance of the traditions of his profession, a medical man may have to put up with judicial blame for omitting to do what he deems to be wrong, whatever Mr. Justice HAWKINS or Mr. Justice AVORY may have said. He may, in short, have upon occasions to enjoy the sympathy of his profession, and at the same time to run the risk of disapproval on the part of those administering the law. He will remember that there are courses of conduct as to which honestly held opinions may differ, each course being affected by the point of view of its equally conscientious holder. We strongly advise every practitioner who finds himself in charge of a case of abortion to summon a fellow practitioner of special knowledge to his assistance.

QUEEN'S UNIVERSITY OF BELFAST.—The Vice-Chancellor's report has just been issued for the year 1913-14. Apart from the satisfactory fact that there is an increase of 72 in the number of entrances of students for the year, the only striking features of the report are the preponderating weight of students in the Faculty of Medicine and the number of women at the University. Thus, in the Faculty of Medicine 262 students (232 men and 30 women) were enrolled during the year, a number which is 10 in excess of the students in all the other faculties combined. In the same Faculty of Medicine there were 30 women, while in the other faculties there were 108 women (69 in arts, 35 in science, and 4 in commerce). Indeed, if the number of women in attendance at Queen's University of Belfast (138) is subtracted from the total number of all students (514) the actual number of men students is 376, while in the non-medical faculties there were really 108 women students to 144 men.

Annotations.

"Ne quid nimis."

THE SHORTAGE OF MEDICAL STUDENTS.

WE published last week a letter from Sir Donald MacAlister in which he gave figures supplied to him from the various schools of medicine throughout the kingdom showing a marked falling off in the number of medical students pursuing their curriculum at the end of 1914 as compared with those undergoing education at the corresponding date in the preceding year. The President of the General Medical Council pointed out that perhaps from 200 to 300 fewer practitioners would yearly be added to the medical profession for some time—an average shortage of 25 per cent.—and this is a serious matter, implying a numerical weakness in our body which will follow for a period the establishment of peace. The extent of the shortage and its duration are difficult, or impossible, to estimate, for the war now raging is without any parallel in history from which we can form opinions. The war has absorbed, and is likely to absorb, so many young men who otherwise would be undergoing training for various professions that education for the peaceful callings of civil manhood, so far as able-bodied youths of military age are concerned, is for the moment largely arrested. Indeed, a shortage of 25 per cent. in those preparing for admission to professional life might, we conceive, easily be exceeded in the case of other professions. This is not surprising, for a supply of medical men is necessary to the health of the country, while students who remain at the medical schools now are helping in the conduct of the struggle by their assistance in the hospitals. An anxious demand for the services of medical men and the expectation of high efficiency on their part will probably be observable when peace renders it possible to review the position and make dispositions for the maintenance of the health of the nation in the future. It will then be known to what extent there is shortage, and to what extent the law of supply and demand will give rise to higher emoluments, and so to an increase in the number of those seeking medicine as a career. If a prophecy may be hazarded, it seems not improbable in the circumstances that the medical profession of the not distant future will offer better inducements to young men of ability than it has done hitherto, and that a raised and well-sustained standard of efficiency will be the result. In the meanwhile there is likely to be a certain shortage as there will be in all the professions, and the premature closing of many promising young lives will make itself felt for long years to come. There will be inconvenience to the public, and a demand will make itself felt more urgently than hitherto for the distribution of medical practitioners through the country in a more symmetrical manner, causing the shifting of some who have chosen populous centres, well supplied already, to less attractive areas, where the need for their services is greater and where the competition of their colleagues is less keen. The advocates of a State Medical Service will see here an opportunity. Its opponents will point to the advantages of a free hand being left to those concerned, subject only to such pressure as the law of supply and demand may exert.

EDWARD ALANSON, A PIONEER OF SURGICAL CLEANLINESS.

ONE of the most interesting consequences of the study of the history of medicine lies in the adumbrations of modern principles and practices which we are accustomed to regard as a modern dayspring piercing the darkness of an age of night. An interesting example of this is given us by Mr. R. W. Murray in an account of one whom he rightly describes as "one of the greatest surgeons Liverpool has ever produced."¹ Edward Alanson, who flourished from 1743 to 1823, went to Liverpool in 1763 to study medicine as apprentice to Mr. Pickering, one of the surgeons to the Liverpool Infirmary. On the completion of his apprenticeship in 1768 Alanson went to London, where for two years he was a pupil of John Hunter, and returned to Liverpool in 1770 to commence practice, being elected a surgeon to the infirmary. The important fact in regard to Alanson's position as a pioneer of modern surgical principles lies in his views regarding the general treatment of patients in hospitals, his suggestions for obviating the vitiated atmosphere, and his advocacy for surgical cleanliness, as quoted at length by Mr. Murray. Briefly summarised, it may be stated that he urged that no ward should be occupied for more than four months, but that then it should be thoroughly cleansed, and the walls scraped and whitewashed; that the bedding should be of such material (chaff and hay) as would permit of its being frequently changed; that it should be exposed to the air for four hours daily; that infected clothes and bedding should be baked in an oven; that gangrenous or putrid wounds should be isolated; that there should be open windows in every ward; that there must be no overcrowding, for which reason chronic, incurable, or infectious cases should not be accepted; that convalescent homes should be established in connexion with infirmaries; that particular airy rooms should be provided for operation cases, never be long inhabited, and should be alternately cleaned and ventilated; and that all bedgear used in "putrid cases" should be cleansed and disinfected by baking. Alanson in his own practice avoided ligaturing *en masse* and cleansed the wound thoroughly with warm water, all coagulum being carefully removed; and he always washed his hands thoroughly before operating, an unusual action in his day. As a result he was enabled to state that though he had never refused to operate in any case where a single person in consultation had deemed an operation advisable, he had operated in the infirmary in 35 cases promiscuously without a single death, without a case of secondary hæmorrhage, and only one of exfoliation. When Lister started on his epoch-making career the conditions of hospital surgery were such that no general improvement could have taken place over those found by Alanson prevailing in the infirmary. Lister clearly established by the enunciation and proof of the germ theory of disease the "how" of the connexion between dirt and disease in surgery, and thus principles which had been foreshadowed in vain by Alanson inevitably compelled general acceptance under Lister.

¹ Edward Alanson and His Times. By R. W. Murray, F.R.C.S. Liverpool: Samuel Hill and Sons. 1914. Pp. 26.

AMPUTATIONS IN WAR SURGERY.

THE conditions in war are so very different from those encountered in times of peace that the conclusions arrived at in the latter case are often found to be quite inapplicable to the former. The rules for amputation in ordinary civil practice have been based on an enormous amount of experience, and they have been received by all surgeons; but in war-time the conditions are utterly different, and civil surgeons unacquainted with war conditions must not attempt to dogmatise and to lay down rules for circumstances with which they are not acquainted. In the present issue of THE LANCET we publish an interesting paper by Lieutenant H. Fitzmaurice-Kelly on the methods of amputation which have been found advisable at the front. In place of the elaborate procedures which centuries of experience have shown to be best in civil practice, Mr. Fitzmaurice-Kelly tells us that the present war has shown that the simplest method of amputation proves sometimes the best. In fact, a return to the oldest method of amputation is advised, the simple circular method. The advantages claimed for this method are: that the absence of flaps allows the limb to be removed at the lowest possible point, thus minimising the shock; that the raw surface left is the smallest possible; and as no attempt is made to bring the edges together the drainage is perfectly free. The rapidity with which the operation can be done is an additional argument in its favour. There is the disadvantage that the stump so formed will need later some further operative treatment, but this can be carried out in favourable circumstances, when the patient has fully recovered from the shock of the injury and of the first operation, and when the conditions as to sepsis are all that can be desired. With much of what Mr. Fitzmaurice-Kelly says we must all agree, though too big a generalisation must not be made. It is never safe to assume that the curative measures which are definitely the best in one set of circumstances will necessarily be those most suitable for all times and seasons.

THE REACTION OF HERMAN AND PERUTZ IN SYPHILIS.

THE method of performing the Wassermann serum reaction for the diagnosis of syphilis was published in 1906, and is now employed all the world over. But it has the disadvantage of demanding experienced services for its performance. For this reason the search for a simple, yet trustworthy serum reaction in syphilis has not ceased, and the most promising of those hitherto described depend upon the precipitation of such substances as taurocholate or glycocholate of sodium, lecithin, or cholesterolin, by the serum or cerebro-spinal fluid of syphilitic patients. One of the weak points in these reactions has always been their tendency to give positive results in non-syphilitic as well as in syphilitic cases, a tendency which appears to vary inversely with the skill of the experimenter. Bang and With¹ have recently made a careful study of the Herman and Perutz (1911) reaction, depending upon the precipitation of sodium glycocholate and cholesterolin, which is, they say, the most specific and the most sensitive of these reactions for syphilitic infection. They note that it is not essential

that the cholesterolin solution should have been freshly prepared; the solution of sodium glycocholate, on the other hand, should be fresh or not more than a few days old, and should be made up with water that has been freed from carbonic acid gas. They find, too, that the use of 0.4 c.c. of serum with 0.4 c.c. of the reagent gives more trustworthy results than those obtained when only half these quantities are employed. They inactivated the serum by a preliminary heating to 55° C. for half an hour, and looked for the results after the mixed serum and reagent had been kept for 18 or 24 hours at the temperature of the laboratory. The later the readings are taken the greater is the number of the positive results obtained, and the less is the reaction specific for syphilis. Bang and With have been at pains to compare the results they obtained with this reaction and those furnished by Wassermann's test. Out of 110 patients with primary sores in whom Wassermann's reaction was still negative, 41 gave a positive Herman and Perutz reaction; it has often been pointed out before that the latter reaction appears the earlier of the two, and also lasts the longer when the patient is under antisyphilitic treatment. In secondary syphilis the two reactions appear with about equal frequency, and in many instances supplement each other's deficiencies. In tertiary syphilis, including tabes dorsalis and general paralysis of the insane, the advantage lies clearly with Wassermann's reaction; and so it does in the case of late congenital syphilis, of which Bang and With have seen 46 cases, 43 with a positive Wassermann, but only 16 with a positive Herman and Perutz reaction. One of the weak points about the latter reaction is the frequency with which it is positive in non-syphilitic patients. About 2 per cent. of people apparently free from syphilitic infection react to the precipitation test as if they were syphilitic.

AN AMERICAN SURGEON'S PRIMER OF THE WAR.

THE United States has given abundant material proof of sympathy and affection for us. But more than this: hosts of clear-sighted men and women in America are fighting the cause of the Allies with pen and tongue. Trying hard to make the best of a bad cause, Germany is flooding America with literature, but all in vain. The sentiment in the United States is overwhelmingly against her. One of the best counterblasts to this press campaign has been issued by the distinguished Philadelphia surgeon, Professor J. William White. In "A Primer of the War for Americans" he has put the issues squarely for democracy against autocracy, bureaucracy, and militarism. To ten questions answers are given partly from official documents, partly from his own reading. The pamphlet is full of strong meat, and contains one of the best statements we have read of the fundamental causes of the war. The chief blame is laid on the Kaiser and his entourage. "The war is a German-made war, having its source and inspiration in the writings and teachings of the Pan-Germanists; in the ambitions of an autocratic military caste, headed by a highly neurotic, unbalanced, and possibly mentally diseased overlord, with medieval views of his relation to the country and to the world, and supported by a subservient corps of 'learned men,' the majority of whom are paid servants of the State." The interests of America and of the Allies coincide, and the conclusion of

¹ H. Bang and C. With: Nordiskt Medicinskt Arkiv, Stockholm, 1915, xlviii., Afd. II., Festskrift for J. G. Edgren.

the writer is: "We should at the very least strengthen the wavering, reassure the doubting, give new hope to the despairing by proclaiming to the world our absolute and unreserved belief in the right and justice of the cause of the Allies, and our determination to see to it, should the worst come to them, that they shall have our material support to our last dollar, our last bushel of corn, our last drop of blood." The pamphlet, which may be had from the Winston Publishing Company, Philadelphia, is an illuminating commentary on the intensity of the feeling which has been aroused for the Allies in the United States.

THE SALVATION ARMY IN INDIA.

THE recent announcement that the Emperor of Japan had made a substantial contribution to the funds of the Salvation Army reminds us that this body is not only concerned with evangelical and social reform work at home, but that it is responsible for extensive missionary operations in the Orient, not the least noteworthy of these being its medical mission in India. In this connexion the Salvation Army give notice that they are in need of the services of a medical man to take charge of one of their Indian hospitals. The engagement is for three years, with passage out and back and a monthly allowance.

THE SUBCUTANEOUS INJECTION OF OXYGEN.

In the *American Journal of the Medical Sciences* for December Dr. John McCrae, of Montreal, has discussed the therapeutic value of the subcutaneous injection of oxygen, a procedure which appears to have been principally used in France. The method followed by him was as follows. A cylinder containing compressed oxygen is connected by rubber tubing about one centimetre in diameter with a hollow sterilised needle. The needle used for injecting antitoxin will do very well. The skin is painted with iodine at any desired spot, usually the upper part of the chest, but any part where the skin is lax will do equally well. The needle is placed under alcohol or sterile water, so that the rate of flow on regulating the valve of the cylinder may be observed. A rate just short of a continuous stream of bubbles answers best, although the rate does not appear to be of much importance. The needle is then pushed through the skin, and according to its depth the oxygen will be seen infiltrating in all directions or a lump gradually rises. The usual procedure is to raise a lump about half the size of a football in half to one minute. If the needle be withdrawn and the opening stopped with a piece of adhesive plaster absorption usually occurs quickly and the mass disappears in a few minutes, although for several hours the fingers can detect crepitation. With a stethoscope loud crackles may be heard for a couple of days. Thirty-three patients suffering from different diseases were treated. A striking result was obtained in the case of a man, aged 30 years, who appeared to be dying three hours after the resection of a large piece of bowel and new growth. The lungs were very cedematous and the respirations were 60 and shallow. He was given four large injections during three hours. Although no change was noticed for a considerable time in the respiratory rate he became more comfortable from the moment the gas was injected, and he recovered. In cardiac and renal disease the comfort obtained was usually notable. Eleven cases

of pneumonia were treated, but the results were disappointing. The respiratory rate never fell more than 6 per minute and often remained unchanged, and the course of the disease appeared to be unaffected. However, the patient's comfort was at times increased and the cyanosis sometimes was lessened. Such a result might be predicted if the observation of Peabody that in pneumococcus bacteraemia the oxygen-combining power of the blood falls with the progress of the disease be borne in mind. Subcutaneous injection is an easy method of administering oxygen without waste. When respiration is interfered with or in abeyance oxygen may thus be quickly given. Dr. McCrae considers the method a desirable addition to the armament of the operating room as a provision against the accidents of anaesthesia, the more so as the administration can be confided to a nurse without interfering with those who are employing other measures. He enumerates the following other conditions which have proved amenable to this method: (1) Edema of the lungs or glottis and interference with respiration by disease of the upper respiratory tract; (2) marked dyspnoea with defective oxygenation, as in cardiac and renal disease; (3) asphyxia neonatorum; (4) syncope; and (5) electric shock.

GASTRIC BORBORYGMI.

THE annoying and persistently recurring rumbles that some people exhibit are generally supposed to be due to collections of air in the intestine. They are usually located by the patient on the left side about the level of the umbilicus. That the seat of these borborygmi is not in the intestine but in the stomach is the opinion of Dr. A. E. Barclay (*Medical Chronicle*, 1914, vol. xxviii., p. 164). His evidence has been gained from X rays; the subjects were all females. An atonic stomach appears to be the cause associated with the effects upon it which are exerted by the respiratory movements. When the stomach is atonic the greater curvature sags down to some inches below the umbilicus, the food falls down into the lower part, and the stomach walls above come into contact a little below the cardiac orifice. This arrangement blocks the air-containing portion above from that containing the food below. With inspiration the air-containing space elongates, the normal gastric contractions at this phase being absent, and some of the air is cut off by the collapsed stomach walls. On expiration the air is again free from pressure, and it then bubbles over the left kidney between the collapsed and upper sac walls; this gives the characteristic bubbling. The sounds can apparently be at once stopped by a little pressure on the lower abdomen.

THE SCHICK TEST IN DIPHTHERIA.

FURTHER attention has recently been directed in the *Boston Medical and Surgical Journal* to the possible practical use to which this test may be put in dealing with diphtheria epidemics. By means of the reaction to be immediately described it is claimed to be possible to find out those individuals who are susceptible and those who are not susceptible to diphtheria. The reaction depends upon the local irritant action of minute doses of diphtheria toxin when injected subcutaneously. If antitoxin in the patient is absent or present only in a small amount insufficient for protection, a positive reaction will appear

in 24 to 48 hours. It is characterised by a circumscribed area of redness which persists for seven to ten days, and on fading shows superficial scaling and a persistent brownish pigmentation. An outbreak of diphtheria occurred at an industrial school near New York in April and May, 1914. Six mild cases were found and in June six more. Cultures taken from all the well children in the first week of May showed that 90 out of 260 were carriers of diphtheria germs. The Schick test was employed and it was found that half of all the children were immune; most of the carriers, too, were immune. All the cases not immune were given 1000 units of antitoxin, and this was repeated in 30 days as it was found that 75 per cent. of these cases had again become positive, a proof that the immunisation does not last for very long. The result of the measures adopted was a progressive diminution in the number of carriers, and by the first week in August only three or four remained.

LEPER HOUSES AND MEDIEVAL HOSPITALS.¹

BY CHARLES A. MERCIER, M.D. LOND., F.R.C.P. LOND.,
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LATE PHYSICIAN FOR MENTAL DISEASES, CHARING CROSS
HOSPITAL.

A HOSPITAL is not necessarily for the reception of the sick. Even now we have the examples of Christ's Hospital, Greenwich Hospital, Chelsea Hospital, the Foundling Hospital, and others to remind us that a hospital, or as our ancestors called it, an *hospital*, is a place of entertainment, a place where hospitality is dispensed. The word is sometimes used in old documents as equivalent to an inn, and indeed the word *hotel* is but a modified form of hospital, and the hostler or ostler is an hospitaller. This introduction is necessary because in treating of early and mediæval hospitals it is impossible to restrict our inquiries exclusively to hospitals for the sick, for in early times there were few or none that were devoted exclusively to this purpose.

There is no record of any hospital in Pagan Rome, but no doubt some existed, for with the establishment of Christianity by Constantine many were founded, both at Constantinople and at Rome, and were on so great a scale that it is certain they were not the first. Heraclitus said that all things flow. If he had said that all things grow, he would have uttered a more fundamental truth. Nothing springs suddenly into existence, but all great things have small beginnings.

The first hospital of which we have any record was founded for lepers in the reign of Constantine, himself a leper, by one Zoticus, a wealthy noble of his court, and the example was soon followed by others—Eubolus, Statius, Polybius, Eugenius, and Olympia, all in the fourth century. The Hospital or Xenon of Zoticus had a varied history. In the reign of Constantius there was a famine in Constantinople, and the populace accused Zoticus of bringing the wrath of heaven upon the city by preserving so many people whom God had accursed by afflicting them with leprosy. Zoticus was thrown into prison, and the Emperor, hearing that he had a magnificent collection of jewels, ordered him to produce them, Zoticus agreed, and took the Imperial bandit to his leper house, where all

the lepers, headed by the daughter of Constantius himself, appeared before him, each bearing a lighted candle. "Behold!" cried Zoticus, "my precious jewels!" Constantius was not impressed. On the contrary, he was so furious at the trick that he ordered Zoticus to be torn to pieces by wild mules, and the lepers, including his own daughter, to be thrown into the Bosphorus. However, he seems to have repented soon after, for in the following year he founded another leper house on the same spot. This was burnt in the riot provoked by the persecution of St. John Chrysostom by the Empress Eudoxia in 404. Rebuilt by Theodosius the Younger in 415, it was again burnt in the riot of Nica in 532. Justinian I. rebuilt it on a much larger scale in 540, his successor enlarged it in 577, and in 1116 the Emperor Alexius Comnenus increased it so that it would accommodate, it was said, 10,000 beds. His daughter, Anna Comnena, the celebrated blue stocking, gives a long description of it in the fifteenth book of her "Alexiad." "It is," she said, "a veritable city, where the unfortunate are nursed and cared for—wine flows in rivers; the blind are led by those who see, the old by the young, the legless by those who have legs, and those without arms by those who possess them; orphan children are suckled by mothers not their own; the sick are served by those who are well."

To return to the fourth century, it is said that under Theodosius the Great the number of hospitals was so great that one was attached to almost every church, and towards the end of this century St. Basil devoted his life and his fortune to the maintenance of a great leper hospital at his native town of Cæsarea. It was primarily a leper house, but included numerous annexes for travellers, monks, workmen, and the sick. St. Basil himself nursed the lepers and instructed the nurses in dressing their sores. When he died, St. Gregory Nazianzen preached a memorable funeral sermon exalting the work of Basil above the seven wonders of the world, and pleading with great eloquence the cause of the leper. It is notable that Newman in his life of Basil does not mention the leper house, and in his life of St. Gregory Nazianzen does not give the funeral oration. All that interested Newman was the mental struggles of the saints, and the squabble between them.

Justinian established *xenodochia* or *nosocomia* (hospitals), *ptochia* (poor-houses), *orphanotopia* (orphanages), *brephotropia* (foundling hospitals), and *gerontocomia* (almshouses), so that in his time charity was profuse and organised. His wife, the infamous Empress Theodora, founded a penitentiary for fallen women, and in her journey to the baths of Pythea she distributed liberal alms to the churches, monasteries, and hospitals of Bythynia.

In Moorish Spain and in Syria general hospitals for the sick were maintained by the Caliphs, and great schools of medicine grew up around them, giving to the world physicians whose names are imperishable—Mesué the elder and the younger, Rhazes, Avicenna, Haly-Abbas, Avenzoar, Averroes, Abulcasis, and Maimonides, a succession of physicians who cannot be paralleled in Christendom from the ninth to the twelfth century.

In this country only two hospitals are known to have been founded before the Conquest, neither of them for lepers. The first leper house in France was founded at St. Ouen in 460 and the first in England by Lanfranc in 1087. Many leper houses were founded in this country in the thirteenth century, but very few after that time, and in France

¹ Abstract of the FitzPatrick lecture No. I. The full text of the two lectures will appear in the Glasgow Medical Journal.

none were founded after the fourteenth century, though further east Solyman the Magnificent founded a great leper house at Scutari in 1540, at a time when the European leper houses were being closed for lack of patients.

Leper houses were hospitals in the modern sense in so far that they were institutions for the reception of the sick, and in some leper houses there were nurses, but the leper houses of Christendom were rather combinations of the prison, the monastery, and the almshouse than hospitals in the modern sense. The chief object of the leper house was to serve as a prison, or if we prefer the term, a compulsory isolation hospital, for the seclusion of the lepers from the general population. This seems to have been the rule from very early times. Herodotus says that in his time in Persia if anyone is afflicted with leprosy he is driven from the town and forbidden to associate with other Persians; and Pausanias in 479 B.C. mentions a town of Elida named Leproon because of the lepers accumulated there, but neither Aretæus, who gave a minute and accurate description of leprosy in the first century A.D., nor Galen, who gave a detailed description in the second century, nor Oribasius, in the fourth century, say that the disease is contagious or speak of the segregation of lepers. The first mention of the compulsory isolation of lepers in Christendom is by Ætius in the sixth century, and Paulus Ægineta in the seventh speaks of it as an established practice in his time.

It is doubtful whether the seclusion of lepers from the general population was at first due to any apprehension of the contagiousness of the disease. It seems more likely that in early times the leper was separated because he was looked upon as accursed. The disease was regarded as a mark of the wrath of God, and the leper was driven from among men lest they also should share in the Divine displeasure. However this may be, it is certain that at a very early time the conviction of the contagiousness of the disease was firmly fixed in the general mind. A regulation of the great leper house of St. Julian at St. Albans provides that "no Brother is to go into the Bakehouse or Brewhouse but he that has charge of them, and he not to touch anything, because Persons under such a Distemper are not to handle what is for the common use of Men." The danger of contagion is explicitly stated in a writ of Edward IV., which opens with these words: "Whereas we have heard that Johanna Nightingale is a leper and is commonly holding intercourse with the people of the aforesaid county, and mingles with them both in public and private places, and refuses to retire to a solitary place, to the grievous injury, and on account of the contagion of the aforesaid disease, the manifest peril of the aforesaid inhabitants," &c.

At Arles, Metz, Marseilles, Berwick-on-Tweed, London, and other places, inspections were made from time to time for the discovery of lepers, and regulations were made to prevent them from entering the towns. In Scotland all men were forbidden to harbour lepers, and lepers were forbidden to enter any town except on Sundays, Wednesdays, and Fridays, from 10 to 2, and not then if there was a market on those days; and in 1349 the Dauphin, subsequently Louis XI., issued a commission to the whole of France to discover lepers and forbid them to mingle with others. If lepers refused to go into retreat they were very summarily dealt with. At Metz and some other places in France they were burnt alive.

No doubt many people suffering from chronic skin diseases of various kinds were sent to leper houses, and both Bernardus de Gordonio and John of Gaddesden complain that lepers are very injudiciously adjudged, but still the recorded regulations show that in many places extreme care was exercised that no one should be considered leprous who was not indeed a leper. In Lorraine, in a doubtful case, a suspect was subjected to 22 successive investigations, and if still doubtful was sent to a leper house, but was there visited by physicians, and not until he was declared leprous by them was he *cum multis verbis bonis et consolatoriis sequestrandum a populo*. In other places the suspect was kept under observation for a year. All the ancient and mediæval authors give a very clear description of leprosy, distinguishing the four different kinds—elephantine, alopecic, ophidian, and leontine—and give an immense number of diagnostic signs, up to 75 in some authors. Bartholemy Glanville's description is as picturesque as any. As translated out of Latin by John Trevisa he describes lepers as having "redde Whelkes and Pymples in the face (cf. Bardolph's nose, covered with Knobs and Whelks and Bubukles and Flames of Fire) out of whome oftenne runne Blood and Matter; in such the nose swollen and ben grete, the vertue of Smellynge fayleth and the Brethe stynkyth ryght fowle," &c.

In Rymer's "Fœdera" appears a *Medicorum Regis supra morbo leprae certificatio* which is addressed "To the most excellent and serene Prince and Lord in Christ, Edward, by the Grace of God King of England and France and Lord of Ireland." It is dated 1468, and refers therefore to Edward IV., and sets forth that in obedience to a writ addressed to the Sheriff of Essex, "We, William Hattecliffe, Roger Marshall and Dominus de Serego, your physicians, and sworn to watch over the health of your person, send due Reverence with Humility and Worship." The three physicians then recite the writ, and declare how they have examined the suspect for the 25 signs of general leprosy and for upwards of 50 of the distinctive signs of the four varieties, and find that she is utterly free and untainted. It appears that in this instance, at any rate, more care was exercised in the reign of Edward IV. in the examination of a leper than is now required in the examination of a lunatic.

When the verdict was finally given that the suspect was indeed leprous he was subjected to a gruesome ceremony adapted from that of taking the veil. He was carried to the church on a bier and covered with a pall, the mass for the dead was said over him, he was then taken to the churchyard and placed beside an open grave, where the priest scattered dust three times upon his head, saying, "Die to the world: be born again to God." Then after many admonitions and further prayers he was conducted to his solitary cabin, or to the leper house, and became civilly dead. His will was administered, his wife was free to marry again, he was incapable of holding property, he could not even be a guardian in socage, whatever that may be, and thenceforth he lived an outcast, subsisting on the alms of the charitable. If, however, he was fortunate enough to gain entrance to one of the wealthy leper houses his lot was a fairly comfortable one as far as material comforts go, but he had to pay for this better treatment by a very severe course of religious exercises.

It is evident that in respect of secluding him from the healthy population, it would avail little to

send a leper to a leper house unless measures were taken to keep him there, and we find accordingly that punishment of greater or less severity awaited the leper who made his escape. At St. Julian's Hospital, where lepers lived in considerable luxury, it was considered sufficient punishment to expel them from the house if they lay out all night. The same offence was visited at St. Magdalen's Hospital, Exeter, by the stocks and bread and water for one day. At Greenside in Scotland the same offence was a hanging matter, and lest any inmate of the leper house should forget the penalty and err by inadvertence, the authorities thoughtfully erected a gibbet before the gate to remind him. At other places the offence was regarded still more seriously. At Schenalle in 1321 two lepers who escaped from the leper house were first flogged and then burnt alive.

Leprosy must have been extremely prevalent in the Middle Ages. Mezeray says that in the twelfth century there was neither town nor burgh in France that was not obliged to provide a hospital for lepers. Muratori says that in Italy there was scarcely a city that had not a place set apart for lepers. Our Anglo-Saxon ancestors called it *seo mycle ail*—the great disease. In 1226 it was reckoned that there were 2000 leper houses in France, and this is probably correct, for there were 43 in Paris alone, 219 in Normandy, and 59 in Lorraine. In England it seems to have been less prevalent, for in the twelfth century there were but six in London, five at Lyme Regis, and 20 in all Norfolk, and we do not know of more than about 220 in England and Scotland. Other signs of its prevalence are found in the number of distinguished persons, reigning sovereigns and others, who are known to have suffered from it, and in the provision of separate leper houses for separate classes. Thus in Dauphiné there was one leper house for the nobles, another for the commons, and a third for the ladies of the court. The hospital at Walsingham was for lepers who were sick and of good family, and that of St. Laurence of Canterbury was for the clergy.

Few leper houses were founded in England after the thirteenth century, and in the fourteenth century the English leper houses were being closed for lack of patients, and their funds diverted to other uses. A few isolated cases are recorded in the sixteenth century, in which the disease altogether disappeared in this country. In France it was reported in 1696 that leprosy had altogether disappeared, and though it lingered in the Hebrides till the last century and is still known in Norway and Constantinople, yet in the great area of Europe it has entirely disappeared.

Why leprosy should thus have disappeared from Europe is a curious matter for speculation. It is certain that it was not exterminated by the isolation of lepers, for in the first place it is doubtful whether leprosy is contagious at all, and in the second it is certain that the measures of isolation taken by our forefathers would not have suppressed it if it were contagious. The disease is of very slow progress, and the leper was never isolated until his leprosy was well advanced. There must always have been, therefore, many lepers in the early stages of the disease going about among the general population, and if leprosy is contagious at all it is not to be supposed that it is not contagious in the early stage, in which the contagion of most contagious diseases is virulent. Moreover, if it was the isolation that eventually put a stop to the disease it

is difficult to see why it should take 1200 years to do so. Sir Jonathan Hutchinson was of opinion that leprosy is due to eating fish that is decomposing or insufficiently cured, and that it declined with the abolition of fast days and of the practice of eating salt fish that occurred at the Reformation. In fact, however, leprosy was already practically extinct in this country before the Reformation, and it has disappeared as completely from Catholic as from Protestant countries. It is sometimes asserted that leprosy disappeared in consequence of the amelioration of manners and the adoption of greater cleanliness and better sanitation, but I know of no evidence that the customs of our ancestors in respect of cleanliness and sanitation were any better in the fifteenth and sixteenth centuries than in the seventh or the twelfth, nor that any improvement in this respect was earlier in this country than in France. In view of the difficulty of communicating the disease, even by inoculation, the surmise has crossed my mind that the bacillus may have been injected by some biting insect that is now become extinct, and may perhaps have undergone in the body of the insect some developmental change which enabled it to invade the human tissues with greater ease. It may be so, but there is no evidence that it is so, and the surmise remains a mere surmise. There is, however, another hypothesis which has a good deal of corroboration, indirect, it is true, but still of some weight.

The clinical descriptions of disease that we find in ancient and mediæval writers on medicine were so clear and so faithful that we have no difficulty in recognising in them the diseases that are known to us now. The most prevalent, the most widely diffused, and, in its later stages, the most easily recognised and most deadly disease that now afflicts European peoples, is undoubtedly pulmonary consumption; and it is remarkable that although there are in the old writers descriptions of disease that we may with some hesitation identify with phthisis, yet there is nothing in the writings of ancient and mediæval physicians to make us believe that phthisis was in their time at all comparable in prevalence with its prevalence now. I venture to put forward the conjecture that the bacillus of leprosy is changed into the bacillus of tubercle, and that tuberculosis has thus superseded leprosy as the chief scourge of mankind in modern Europe. In support of this conjecture I adduce the following facts. First, leprosy, from being the chief scourge of the European population, has spontaneously disappeared. Second, it seems probable that since the disappearance of leprosy tuberculosis has greatly increased. It is certainly as common now as leprosy used to be. Third, the bacillus of leprosy is very closely allied to the bacillus of tuberculosis, so that unless we are to repudiate the doctrine of evolution we must believe either that they are both descended from a common parent or that one of these is the parent of the other. Of the first alternative we have no evidence. There is no known disease that in the least resembles the pair, tuberculosis and leprosy; and these two are closely alike. Both are very chronic diseases; both are longer in duration than any other bacillary disease. Both are favoured by hereditary predisposition. Both have been held to be hereditary, and they are the only bacillary diseases in which heredity has been alleged to have any influence. Lupus is a bacillary disease of the skin of the face produced by a bacillus that is closely allied to tubercle—that is if you like, a

variation of the tubercular bacillus—a disease that closely resembles leprosy, that attacks the same part in much the same way, and produces with equal chronicity a similar disfigurement. In lupus we have, as I take it, the halfway house between leprosy and tubercle. We see the transformation actually in progress. That bacilli do change in virulence and in other qualities is beyond question. It is a commonplace. The whole practice of vaccination is founded upon it.

On this accumulation of evidence I found the conjecture that leprosy has after all not disappeared from Europe, or if it has it was only to reappear in the form of tuberculosis. In mediæval times there was no city, no burgh, without its leper house. At this day it is a pious aspiration that every city and every burgh should have its sanatorium for consumption. It would be curious if it were established that, unknown to ourselves, the great scourge from which we suffer is the lineal descendant of that from which they suffered, and we, their lineal descendants, treat it in the same way, but up to the present less thoroughly.

CIVIL MEDICAL PRACTICE AND THE WAR:

THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

AT a meeting of practitioners in Glasgow and district on Dec. 16th last, presided over by Dr. John Barlow, President of the Royal Faculty of Physicians and Surgeons of Glasgow, Dr. Norman Walker delivered an address on the work of the Scottish Medical Service Emergency Committee. This committee, he said, which was constituted at the outbreak of the war, and consists of the heads of the Scottish medical schools with certain representative practitioners, had issued a memorandum,¹ the points of which he discussed and explained.

The first point was that the fee offered to a locum tenent taking the work of a practitioner engaged in military duty should not exceed 5 guineas a week. This recommendation had been very generally accepted.

The second suggestion, that retired practitioners willing to enable their professional brethren to serve their country should send their names to the Emergency Committee, obtained a good many names, but when they came to definite proposals it was not so easy for a practitioner in the neighbourhood of 60 to face a hard country or colliery practice. He appreciated the difficulties, and did not utter a word of criticism. Indeed, some men had heroically undertaken work which would tax their strength. But he thought there was room for those retired men who were unfitted for the whole work of a practice. There were many districts where a large part of the work was done in the consulting room, and this work could very well be done by such men, while the visiting was done by the younger men who had not been summoned to military duty. This called for organisation.

The third suggestion was addressed to the educational authorities, and was to the effect that school medical officers should be permitted to give at least part of their time to general work. Very little had

been done in this direction, and something more might be done. By a little harder work and by a little organisation two men might do the work of three. It was the local educational bodies from whom the proposals must come.

The fourth suggestion was that the visiting staffs of large hospitals, infirmaries, and asylums should consent to a reduction of the numbers of their medical residents and clinical assistants, and should themselves undertake a proportion of the work usually assigned to these junior officers. This had been faithfully carried out. All hospitals had cut down their resident staffs. One very distinguished professor of medicine was acting as his own house physician, and a well-known professor of anatomy for three months acted as house surgeon in the hospital attached to the school in which he was professor.

The fifth point was that in the larger towns young practitioners whose practices were not yet extensive should in pairs make an arrangement whereby one undertook the whole town practice for (say) two months, while the other acted temporarily in the country for a third colleague absent on duty; and so alternatively for successive periods. So far as he knew, no one had taken the advice in this direction. It was a method which he hoped young men would seriously consider. Lord Kitchener had advised men whose work is necessary for the successful prosecution of the war that they would be rendering just as good service to their country by continuing their work as by enlisting in the army. The men driving rivets on the Clyde to-day were in this position, and so was the young doctor who, by doing double work, enabled another to go on active service.

He admired the opportunity women had of demonstrating their fitness. He could not think that the front, or very near it, was the place for them; but in filling the places of the men who had gone to the war they had the chance of showing in spheres of work not as a rule easily open to them their real merit. He could not say that his earlier offers of women locum tenents were received with enthusiasm, but he could say of those who were accepted that once the novelty wore off the value of their work was appreciated, and he had before him now a request for a locum tenent—a lady preferred. No woman doctor who had the woman doctor's cause at heart had any business to remain idle just now.

It was a pretty safe prophecy that in the next few months with the officering of the newly enlisted men the period of stress would be greater, and as the new graduates almost all immediately joined the army, the remaining profession and the public would have to depend largely on organisation to cover the work. The new graduates should send in their names to the War Office at once, but they would not immediately receive commissions. He asked them not to idle away that waiting time, but to give it to the civil community.

The most complete example of organisation was found in Dundee, where an exceptionally large proportion of doctors were serving in some capacity with the colours. A very elaborate system had been designed, and was working with remarkable smoothness. There was not really much difficulty in the large towns, but in the real country districts matters were much more difficult. No one who was busy in his own practice could

¹ See THE LANCET, August 22nd, 1914, p. 530.

adequately do duty for an absent colleague whose centre was ten miles away. Patients were bound to be neglected, and this must not occur. Locum-tenents must be found, and he made a special appeal to those who had available colleagues to exhaust every effort to make arrangements with these colleagues and leave locum-tenents for the places where they were absolutely necessary.

Dr. Walker then referred to the physicians and surgeons of the large hospitals, who were doing admirable work in caring for the wounded and sick in the military general hospitals, and at the same time attending to their ordinary hospital work, teaching, and carrying on their private practice. It would be a great thing if there were some similar arrangement in connexion with general practitioners. A great deal of consideration from the public was required. Military duties must come first, but there were a good many hours in a day which, if a man were stationed in his own district, he could occupy in attending to the health of the civil population, his former charge. It had been represented to the authorities that by a sort of "general post" men could get back to their own homes, and, while still discharging military duty, do at least some of their own work as well. The Director-General had given these representations most sympathetic consideration, and an Order had been issued which would very considerably ease the strain in many instances. (This Order is published on p. 49.)

When men joined the Territorials they never for a moment contemplated the possibility of having to go, say, to India for a year or 18 months. And yet till this week that was more than a possibility in many cases. But thanks to this Order of the Director-General it would be not only possible but easy for arrangements to be made to avoid this. He did not counsel any shirking of work, but he did question the wisdom of a medical man over 50, with heavy responsibilities at home, both to his own family and to the patients who loved and trusted him, who from a mistaken sense of duty exposed himself to the risk of such a serious change. As to going to the front, anyone who had heard from an eye-witness of the state of things in Belgium had great difficulty in advising one who has the chance of going there to make other arrangements. Yet even for that the middle-aged must admit that, always excepting expert surgeons, the younger men were more useful than they would be likely to be. The general spirit among the profession reflected that of the community, and all were anxious that those who had answered the call of duty should not suffer. For instance, nearly every one had refused to accept the transfer of insured persons on an absent colleague's list, and he regretted that he had to use the qualifying word "nearly."

Referring to unbusinesslike habits among medical men Dr. Walker had been astonished to find in how many cases no definite arrangements at all had been made by those who had joined the army. Men went off at 24 hours' notice. They asked a neighbour over the telephone to do their work for them, and he said, "Certainly." It was all right in August; there was not much to do, the roads were dry and the days were long, but it now became a different matter. There was more work; the roads were heavier and the days not long enough. The man who was trying to do double work in this

way was late for dinner every day; nearly twice as often out of bed; his tyre and petrol bills were going up; his chauffeur's temper and usual cheerfulness gave way, but he did not like to open the subject in a commercial way with his colleague, who was away serving his country, though perhaps only 30 miles from home. The man who was away was in such different surroundings that he seemed to forget all about the sordid details of practice at home. A feeling of injustice developed in the mind of the man on whom the work fell, and it did not get less as the work got harder. This state of matters must not go on. It was not fair to either party, and it was laying up certain trouble for the future. In most cases it was quite easy to arrive at an equitable arrangement. It was not possible to lay down conditions universally applicable, but the committee had under consideration the advisability of issuing two or three model plans, one of which would generally be found suitable. The general principle was for the man who was away to sum up his new conditions. On one side he should place his pay and allowances and the diminution in his expenses, especially car expenses. On the other, his income from appointments and practice, all of which was now being earned by his substitute. As an illustration in round figures, the case might be taken of someone whose pay amounted to £400; car expenses, £200; total, £600. On the other side might be put £800 as the gross receipts from practice. If that amount were divided equally the man away had a clear £800. The man at home had a gross addition of £400 a year to his income—say £300 net—to cover a very great deal of additional work. In some cases on which Dr. Walker's advice had been asked the car expense element had been forgotten altogether by both parties. The Scottish Medical Emergency Committee had indicated its readiness to help in the adjustment of such cases, and he could say from experience that the intervention of a neutral third party greatly facilitated amicable settlement.

In conclusion, Dr. Walker was convinced that the difficulties would be greater in the next few months than they had been in the past; that they would be difficult to solve, but that they could be solved by goodwill and coöperation.

THE BLEACHING OF FLOUR.

THE public criterion of quality in respect of foods and beverages shows some interesting anomalies. Appreciation is often based, for example, on appearance, on how things look, and it is in this direction that conclusions often and obviously become illogical. In some instances the article demanded must be spotlessly white, while in others if naturally white they must be artificially coloured. The white loaf is a popular fancy, but white milk is suspected, and yet natural flour may be of a rich golden colour, while rich milk may have only a shade of brownish colour which is supposed to connote cream. The result is that in the one case flour is often deprived of its colour by a process of chemical bleaching, and that in the other an artificial colouring (generally annatto) is added. Natural colour is objected to on the one hand, and on the other an artificial addition is demanded. It may be urged that both expedients are justifiable

inasmuch as they meet a popular fancy, and that this counts in the enjoyment and even digestibility of the foods. If artificial means are employed to adjust the appearance of foods to a popular standard, the proceeding can clearly only be allowed when it has been proved beyond all doubt that the products are not dietetically impaired or that they do not masquerade as something which they are not.

Apparently we still await a definite decision from our authorities as to the desirability of permitting flour to be bleached by chemical processes. There has been an accumulation of evidence on the point, and on the one hand we are told that such treatment spoils the dietetic qualities of the flour in certain directions, and on the other that after all the chemical process is merely doing in a few hours what exposure to air accomplishes in as many months or possibly years. In the present crisis it is not improbable that a change of policy may take place in regard to the preparation of food supplies for the market owing to many economic reasons, and it occurred to us to submit to examination one of our foremost necessary commodities—wheat flour. It is conceivable that the present time may afford an opportunity to place on the market inferior qualities of flour rendered "superior" by artificial treatment. In other words, the question arises as to whether the practice of bleaching flour is more prevalent at the moment than hitherto owing to the threatened interference with supplies attendant upon the operations of the great war.

A week ago, accordingly, we secured samples of flour representing the article supplied to the public through the ordinary local distributing channels. The samples secured came from houses situated in the following districts: City of Westminster (4 samples), Kennington (1 sample), Wood Green (1 sample), Ruislip (1 sample), Lambeth (1 sample), Finsbury Park (1 sample), Manor Park, Ilford (1 sample), Lewisham (1 sample), Bromley, Kent (1 sample). These were carefully compared in THE LANCET Laboratory with a standard unbleached flour. A definite weight of the flour was extracted with petroleum ether and shaken up during 24 hours, at the end of which time the whole was passed through a filter and the filtrate made up to a definite volume and compared with the standard unbleached flour. The petroleum ether extracts the natural yellow colouring matter of flour, which is apparently identical with carotene. In proportion to the amount of bleaching that has been done, so does the petroleum ether dissolve diminishing quantities of natural colour. Calling the yield of colour from natural unbleached flour in a given volume of petroleum ether 100, we get some idea of the extent of bleaching to which flours have been submitted, by measuring their colour against this standard when extracted with petroleum ether in exactly the same way.

The following were the results obtained, and side by side with these we give the result of the test applied for the presence of nitrous acid. It will be seen that the relative statements recorded in regard to the intensity of this reaction coincide with the variations in the amount of colour extracted by petroleum ether. Thus, in the cases where petroleum ether showed a maximum of yellow colour (equal, that is, to the standard for unbleached flour) the reaction for nitrous acid was inappreciable. Conversely, when there was a clear deficiency of

natural yellow colour the nitrous acid reaction was well marked.

Table Demonstrating the Bleaching of Flour by Nitrous Acid.

Sample.	Colour value. Maximum 100.	Nitrous acid reaction.	Remarks.
Standard unbleached ...	100	Inappreciable.	No evidence of bleaching.
Westminster (1) ...	100	"	"
" (2) ...	75	Well marked.	A partly bleached flour.
" (3) ...	60	"	A strongly bleached flour.
" (4) ...	100	Inappreciable.	No evidence of bleaching.
Kennington ...	75	Decided.	A partly bleached flour.
Wood Green ...	100	Inappreciable.	No evidence of bleaching.
Ruislip ...	75	Decided.	A partly bleached flour.
Lambeth ...	100	Inappreciable.	No evidence of bleaching.
Finsbury Park ...	100	Slight reaction.	Probably unbleached.
Manor Park, Ilford ...	60	Well-marked.	A partly bleached flour.
Lewisham ...	45	"	"
Bromley, Kent ...	90	Marked.	Slightly bleached.

Of the 12 samples of flour examined there was no evidence in five cases (41·6 per cent.) that bleaching had been done. The remaining seven cases (58·4 per cent.) showed decided bleaching to the extent here and there of nearly half the natural colouring matter.

Leaving health considerations for a moment there seems to be little doubt that since bleaching is capable of improving the colour of flour the commercial value of low-grade flour is probably raised by the process. The miller thus can convert for his own purpose cheap, dark-coloured flour into a white article which, because it is white, commands a higher price. If there is any justification for the process at all it would surely be more legitimately done if there were no question of enhanced profits attached to it, for it can hardly be contended that the real dietetic quality of the flour is improved. It is merely a matter of appearance which is aimed at, and such an alteration so often proves a trap to the unwary public.

As regards the health aspect of the matter there seems to be a difference of opinion. On the one hand, it is contended that nitrous acid has a bad tendency on the nutrient value of flour, putting out of action the enzymes and rendering certain of the constituents invalid, while nitrites have a known and lowering physiological action. On the other hand, feeding experiments are recorded which appear to show that the administration of bleached flour shows no unfavourable effect upon the health at all, and that even extracts of over-bleached flour produced no marked toxic action when introduced into the stomach. This part of the subject is well summarised in a report made by Dr. J. M. Hamill to the Local Government Board in 1911 (Cd. 5613). The practice has been forbidden in the United States, in Australia, and in Switzerland. On the whole we think that the conclusions given in the Local Government Board report referred to

are well founded. It would be very unsafe to assert that for every individual the consumption of flour highly bleached by the aid of nitrous acid could be guaranteed to be free from risk, especially when we know that this process has an inhibitory effect on digestive processes and enzymes. We may well entertain a suspicion whether as a rule natural food products can invariably be improved, with advantage to the dietetic machinery, by chemical treatment. Our inquiry shows that the practice is persisted in and that apparently it is countenanced in spite of official reports and the prohibitory legislation in force in other countries.

GAMELLE AND RATIONS.

(FROM A CORRESPONDENT.)

THERE can be no doubt that our soldiers are now much better fed than in any previous campaign, though an old writer, speaking of an English army in France and the Low Countries some 200 years ago, declares that the English, though capital staunch fighters, are late risers and too hearty eaters. This last idea was perhaps partly in Hogarth's mind in 1755 when he drew his famous "The Gates of Calais, or the Roast Beef of Old England." In this caricature, as all will remember, a large sirloin is being carried into the British lines to the surprise, amongst others, of a French soldier, very lean and starved, who spills his bowl of thin soup in the foreground. It is recorded traditionally that Hogarth by this cartoon contributed to the improvement of the French soldier's condition. The old government of France, according to a commentator on Hogarth, was in certain senses extremely attentive to its military establishment, while it paid but comparatively little regard to the comforts and support of its soldiery, "whose lean appearance" bespoke a meagre dietary.

Up to the time of the Revolution the French army lived from hand to mouth as became well-dressed brigands. With the advent of Napoleon it began to march upon its stomach. It was well fed. The great Emperor himself believed that to eat legs of mutton would beget him a male heir. He may, therefore, as a hearty eater, be said to have contributed not a little to the diet of his soldiers. He set afloat the idea that the well fed are the best men in battle. Much curious information as to how the Parisians in arms at the frontier supported themselves in war-time of old is contained in Erckmann-Chatrian's "Histoire d'un Paysan," a work of enormous length, which, none the less, is the best possible prolegomenon to the border campaign of to-day.

The French army remains at present a mystery. It is excessively enduring and gallant, but we have a shrewd suspicion that it is still attached to soup and to the meat stewed in soup. Our many French informants are always reticent on the subject of their food. We are at liberty, therefore, to suppose that the *gamelle*, in a conservative country, is still the vogue. Now, soup is no sufficing support to a soldier. The *gamelle* is traditional. "Le bon vieux Bouillet," in whom Matthew Arnold and many others have delighted, tells us—we refer to the volume of his dictionary devoted to science, letters,

and arts in 1870—that the *gamelle* is a wooden or tin bowl into which the rations of soldiers are put. Eight men are fed out of the same *gamelle*. Portions of meat are divided and placed upon the soup (*sur la soupe*), and each soldier takes what is before him. He stands up, spoon in hand, and the corporal is the first to dip. Similar cases of dipping are recorded in scripture. The sons of Eli were unfair dippers, and this was remembered against them.

It was a famous Frenchman who gave a preliminary lift to our own military cuisine in the Crimean campaign. The celebrated chef, Alexis Soyer, went to Scutari in 1855, just 60 years ago, and wrote the "Culinary Campaign." He refused to accept anything but the military rations to work upon. He soon revolutionised the whole system. He found the camp cooks at Scutari and in other places tying the joints intended for boiling so tightly that the exterior was cooked while the inside remained raw. He found cooking going on in huge copper cauldrons so dark that it was not possible to see whether the tinning was intact—whether the water was not contaminated by verdigris. He found them marking their rations, "lest they should be confounded in the kettle," by attaching to them pieces of red cloth, a string of buttons, knives, forks, scissors, pairs of snuffers. He found them throwing away the fat from the coppers, three inches thick, for they did not know that they were thus destroying "a little sea" of excellent soup. He found them cooking sometimes with smoke, dust, and steam intermixed, instead of fire, and yet consuming "a fabulous quantity of unnecessary fuel." He changed everything as if by magic, introduced admirable camp-stoves, a cooking-wagon, a new tea-pot, and so forth. Officers sent for his soup. It may be truly said that in the Crimean campaign the English learnt cookery from the French. The hygiene of war greatly depends on good cookery, and Soyer was ranked with Florence Nightingale, in a humorous testimonial of the period, as one of the chief heroes of the Crimean campaign.

We wonder what the Germans are doing, for no nation places food higher. Tacitus says of the remote ancestors of the Germans that their food consists of wild fruit, fresh game, and curdled milk. They satisfy their hunger without elaborate preparation. The dwellers by the Rhine buy wine, but a liquor made out of barley or grain is the national drink. That Germany still rejoices in beer, raw ham, raw herrings, and a number of other savoury simplicities is proof that the cuisine in the Fatherland remains rather in the Tacitean epoch, though the enmity of war does not demand detraction from the excellent German cooking. The Anglo-Saxons developed an ample and elaborate cookery, but this by the learned is attributed to Roman influences. The *Wurst* and the manifold quaint farinaceous dishes of Rhenane Germany, which are akin to polenta, are probably Roman in origin. Monotony is the danger of the military cuisine. The Canadians, for instance, are fed incessantly on a kind of stew called by them "Mulligan," in allusion to that primitive archaic mess known as Irish stew. There can be too much "Mulligan"—our soldiers are feeling that on Salisbury Plain—and we feel sure that authorities will recognise in time that sameness of diet leads to staleness even among the healthiest of men.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Staff-Surgeon John Verdon has been allowed to withdraw from His Majesty's Naval Service with a gratuity (dated Dec. 25th, 1914); and Surgeon Archibald Louis Robinson has been placed on the Retired List (dated Dec. 9th, 1914).

The undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet: Bernard William Dakers, Thomas Evan Francis, and Thomas Declan Power. Dated Dec. 23rd, 1914: George Cecil Mort, Noel Nathaniel Wade, and Norman Clifton Carver. Dated Dec. 24th, 1914: James Stanley Jobson.

Edward Stanley Mellor has been appointed Surgeon for temporary service in His Majesty's Fleet (dated Dec. 24th, 1914).

The following appointments have been notified:—Fleet-Surgeon: H. B. Hall to the *Laurentic*, vice Bradley, and J. Bradley (retired) to the *Challenger*. Staff-Surgeon: T. A. Smyth to the *Vivid*, additional, for Trevel Infectious Sick Quarters. Temporary Surgeons: B. H. Pain and H. Wilks to the *Pembroke*, for R.N. Air Service; H. C. Nixon to the *Ganges*, for Shotley; A. G. Sworn and P. B. Kelly to the *Pembroke III*, for R.N. Air Service; G. B. Moore, additional, T. E. Francis, T. D. Power, and A. M. Grey, all to the *Victory*, for Haslar Hospital; S. S. Beare to the *Vivid*, for Plymouth Hospital; and B. W. Dakers to the *Pembroke*, additional, for disposal.

ROYAL NAVAL RESERVE.

The undermentioned have been granted commissions as Temporary Surgeon in His Majesty's Fleet:—Andrew Moir Gray and Stanley Samuel Beare.

The following appointments have been notified:—Surgeons: G. J. Carr to the *Imperieuse*, and F. St. B. Wickham to the *Vivid*, for Plymouth Hospital.

The undermentioned have been entered as Surgeon-probationers in the Royal Naval Volunteer Reserve:—J. Fairebrother, C. Pearson, T. H. R. McKiernan, C. D. Newman, H. D. McIlroy, D. L. Baxter, J. S. Webster, N. S. Hewitt, H. S. Lucraft, and C. Suffern.

ROYAL ARMY MEDICAL CORPS.

Captain J. C. McCarroll resigns his commission on account of ill-health.

The undermentioned Lieutenants are confirmed in their rank: J. P. Huban, J. C. A. Dowse, R. E. Grandy, G. L. Trower, O. H. Mavor, S. K. Young, F. G. Flood, W. A. N. Fox, R. R. G. Atkins, G. S. McConkey, F. M. Taylor, C. L. Gausson, J. Davidson, H. R. Friedlander, E. Catford, R. P. Ballard, A. L. Robb, W. H. Shephard, H. Smith, C. J. Rogerson, A. F. I. Patterson, W. A. MacLennan, G. F. Clifton, E. F. Guy, T. W. Martin, R. C. Ozanne, J. McKercher, C. Grant, H. A. Fawcett, N. Cameron, J. R. Caldwell, A. D. Child, H. Smith, J. E. Black, G. T. Mullally, W. A. Elliott, N. L. Lochrane, H. B. Sherlock, J. Le M. Kneebone, T. M. Miller, M. Arent, R. A. Stewart, F. A. Bearn, W. S. Haydock, J. B. Minch, O. J. O'B. O'Hanlon, C. Jacobs, W. W. Shorten, J. Cowan, J. A. Ryle, K. L. O'Sullivan, J. F. Hill, S. D. Robertson, R. H. Hodges, T. K. Boney, C. H. G. Penny, J. S. Cocks, H. C. Storrie, T. G. Shand, E. C. W. Starling, P. Thornton, J. P. Litt, J. Paulley, G. L. Jones, W. H. Cornelius, F. Sykes, S. A. Lane, L. H. W. Williams, J. Macallan, K. W. Lewis, J. W. McNee, B. Grellier, F. R. Kerr, F. V. Bevan Brown, R. F. Fagan, W. C. B. Meyer, B. Goldsmith, T. C. Kidner, C. W. Treherne, J. R. McCurdie, D. C. Barron, R. G. Bannerman, E. W. Williams, K. D. Murchison, E. R. Lovell, S. W. M. Jones, E. M. Cowell, P. McDonnell, K. Biggs, C. de W. Gibb, H. G. Crawford, E. S. Walls, A. M. Thomson, M. W. Paterson, J. H. Magoveny, J. C. Young, C. J. B. Way, R. Stewart, C. N. Gover, A. A. Fyffe, A. A. Atkinson, J. A. W. Ebdon, S. Wickenden, J. C. A. McCalden, A. B. Mitchell, D. C. L. Vey, S. W. Rintoul, F. S. Gillespie, R. D. D. Brownson, H. W. Evans, J. W. Craw, J. H. Beverland, W. W. MacNaught, D. S. Badenoch, B. Shires, G. A. Hodgson, B. M. Tuke, A. P. Smith, J. E. Foley, W. B. Alcock, R. G. Martyn, C. L. Balkwill, G. V. Stockdale, R. A. Austin, H. G. Trayer, W. R. Blore, A. L. Shearwood, G. N. Smyth, R. E. Bell, A. Wilson, W. C. Fleischmann, J. C. Spence, W. J. S. Ingram, R. P. A. Kirkland, G. D. Read, and F. J. H. T. Frere.

The undermentioned to be temporary Lieutenants:—Dated August 11th, 1914: Henry Moore. Dated Dec. 6th, 1914: Henry Heathcote White. Dated Dec. 7th, 1914: James Morgan Barkley, Lewis Augustus Walker, Ernest Philip Chennells, Reginald Sherman, Charles Colgate Holman, Frederick Paine, Vynne Borland, Archibald Louis George, John McAdam Hill, John Cunningham McConaghey, Joseph Sandys English, James Reston Gardiner Garbutt, Norman

Booth, Frank Anderson Murray, Sidney James Ormond, Roderick Alan Campbell, John Joseph Johnson, John Nairn Dobbie, Sydney Guy Billington, Montgomery Du Bois Ferguson, William Forbes Dunlop, Frederick Robert Dougan, Ignatius Alphonsus Dowling, Samuel Campbell, and John Corfield Pitter Bayley. Dated Dec. 8th, 1914: Edwin Charles Allan Smith, John William Cormack Gunn, George William Armstrong, Henry Thwaites, Leonard Douglas Saunders, Stuart Murray, James Craig, Ernest Dixon Wortley, Horace Ernest Humphrey Tracy, Thomas Duncan, and John Lumb. Dated Dec. 10th, 1914: James Allen Montgomery, Robert Marshall, James Reginald Kemp, Guy Matthews, James Douglas Carnon Swan, Vincent Joseph Lawless, William Lang Hodge, Arthur Victor Junius Harrison, Robert Masson Greig, Douglas Henry David Wooderson, Clare Oswald Stallybrass, Patrick Joseph Standish O'Grady, Richard Caldecott Monnington, Thomas Brownlie McKendrick, John Stephenson, Derwent Christopher Turnbull, Robert Masson Boyd, Sydney James Simpson, and Edwin Kidd. Dated Dec. 11th, 1914: William Morris and Cecil Anderson Boyd. Dated Dec. 12th, 1914: Carl Rudolf Baltzar Von Braun and Arnold Charles Summerson Courts.

Lieutenant William N. Alexander relinquishes his temporary commission (dated Dec. 10th, 1914).

Temporary Lieutenant Frederick G. Sharpe resigns his commission (dated Dec. 11th, 1914).

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in their rank:—William C. Hartgill, Cecil S. Staddon, William M. Dickson, Frederick M. Lipscomb, Johan F. van der Westhuyzen, Gifford T. van der Vyver, Allan B. Hawkins, Andrew R. Ross, Robert W. S. Murray, Claude H. Fischel, James B. Fotheringham, William H. Elliott, Harry P. Rudolf, Joseph P. Quinn, James Swan, Thomas G. Fleming, John H. Sewart, Leo B. C. Marksman, Douglas N. Macleod, Frank M. Barnes, James L. McBean, Alexander G. S. Wallace, Edgar L. F. Nash, and Richard P. Starkie.

MEDICAL STAFF (INDIA).

To be Officer Commanding Indian Field Ambulance Training Corps:—Lieutenant-Colonel R. J. Baker, I.M.S. (retired) (dated Sept. 28th, 1914).

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following officers of the Indian Medical Service:—Captains to be Majors: Dated March 1st, 1914: John Lumsden Lunham. Dated July 31st, 1914: William Samuel Jagoe Shaw and Dwarka Prasad Gail. Dated Sept. 1st, 1914: Arthur Tregelles Pridham, John O'Leary, George Adam Jolly, Abdurrahman Khan Laudie, Cuthbert Lindsay Dunn, William Henry Odum, Raghuber Dayal Saigol, Cecil Edward Bulteel, Frederick Colin Rogers, and Clayton Alexander Francis Hingston.

The King has approved the grant of the temporary rank of Lieutenant to James Robert Hall Walker (dated Dec. 22nd, 1914).

The King has approved the transfer of Captain Gerald Lewis Colhoun Little to the Temporary Half Pay List (dated Nov. 15th, 1914).

The King has approved the retirement of Lieutenant-Colonel Edmund Wilkinson (dated Nov. 13th, 1914).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Northumbrian Field Ambulance: Surgeon-Captain Clarence B. Whitehead, from the 4th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment), to be Captain.

2nd London General Hospital: Arthur William Ormond to be Captain.

2nd Southern General Hospital: Captain Harold F. Mole resigns his commission on account of ill-health.

East Anglian Casualty Clearing Station: Major William A. Gibb, from Attached to Units other than Medical Units, to be Lieutenant-Colonel.

Northumbrian Casualty Clearing Station: Lieutenant-Colonel William E. Hume, from the 1st Northern General Hospital, to be Major.

2nd London Sanitary Company: John Crawford to be Lieutenant.

1st South Midland Mounted Brigade Field Ambulance: Alexander Mitchell to be Lieutenant.

3rd East Anglian Field Ambulance: Major George Alexander Troup, from Attached to Units other than Medical Units, to be Major.

3rd Highland Field Ambulance: Captain John Tait to be Major (temporary). Thomas Conn Britton (late Cadet, Edinburgh University Contingent, Senior Division, Officers Training Corps) to be Lieutenant.

2nd Home Counties Field Ambulance: Lieutenant Arthur Christopher Watkin, from Attached to Units other than Medical Units, to be Lieutenant.

1st East Lancashire Field Ambulance: Lieutenant John Buckley resigns his commission on account of ill-health.

1st Lowland Field Ambulance: The undermentioned to be Lieutenants: Stuart Robertson, Adam Rankine, and Robert Aim Lennie (late Cadet, Glasgow University Contingent, Senior Division, Officers Training Corps).

2nd Northern General Hospital: Lieutenant Frederick J. Stansfield, from the 1st West Riding Field Ambulance, to be Captain, whose services will be available on mobilisation.

2nd East Anglian Field Ambulance: Archibald Bruce Pettigrew to be Lieutenant.

3rd London (City of London) Field Ambulance: To be Lieutenants: Leonard Henry Wootton and Arthur Edward Huxtable.

Sanitary Service: Major E. Sergeant resigns his commission. Captain Herbert E. Corbin, from Attached to Units other than Medical Units, and Francis John Allan, whose services will be available on mobilisation, to be Captains.

Attached to Units other than Medical Units.—Josiah Field Hall (late Surgeon-Captain, 3rd Volunteer Battalion, The Queen's (Royal West Surrey Regiment)), to be Captain. To be Lieutenants: Leslie Mordaunt Ladell, Lieutenant Herbert Vawdrey Capon (from 2nd East Anglian Field Ambulance), Lieutenant Charles Frederick Searle (from 1st East Anglian Field Ambulance), Lieutenant Frederick Claude Kempson (from 3rd East Anglian Field Ambulance), Austen Andrew Bearne, Archibald Nathaniel Shirley Carmichael, William Louis René Wood, Hugh Archibald McLean, Thomas James Thomson, Edward James Blair (late Captain, 5th Battalion (Queen's Edinburgh Rifles), The Royal Scots (Lothian Regiment)), Angus Cameron, and Leslie Edward Hughes.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Major Frederick Lacey, from Attached to Units other than Medical Units, to be Major.

Yeomanry.

Surgeon-Captain Reginald C. Gayer, from Surrey (Queen Mary's Regiment) Yeomanry, to be Surgeon-Captain.

DEATHS IN THE SERVICES.

Fleet-Surgeon John Neil Robertson, R.N., of the cruiser *Blake*, on Dec. 24th, at the Royal Naval Hospital, Plymouth. He was appointed to the *Blake* in March, 1913, and received his seniority in May, 1914.

Colonel William Johnston, C.B., A.M.S. (retired), at his residence in Aberdeen on Dec. 27th, aged 71. He received his first commission in 1865 and retired in 1892. He served in the Transvaal in 1878 and in the Zulu War in 1879 (mentioned in despatches, medal and clasp). During the South African War he acted as Assistant Director of the Army Medical Department at the War Office.

BULLETIN OF THE NAVAL MEDICAL ASSOCIATION OF JAPAN.

The ninth issue of this bulletin, dated May, 1914, which is just to hand, contains brief summaries in English of the articles written in Japanese character. Fleet-Surgeon T. Mitsunaga writes on the Emetine Treatment of Amoebic Dysentery; Fleet-Surgeon K. Yamada on Garg's Abdominal Symptom and Cathlin's Infections in Sciatica; Fleet-Surgeon I. Tateno on Roentgenotherapy in Tuberculosis of Bones and Joints; Fleet-Surgeon S. Hattori on Three Cases of Glioma Retinae; Surgeon I. Ueda on Aneurysm of the Aorta; and Chief Apothecary S. Isono on Homologous Bodies of Adrenalin.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8251 births and 5580 deaths were registered during the week ended Saturday, Dec. 19th, 1914. The annual rate of mortality in these towns, which had been 16.6, 15.3, and 15.7 per 1000 in the three preceding weeks, rose in the week under notice to 16.1 per 1000 of their aggregate population, estimated at 18,120,059 persons in the middle of the year 1914. During the first 11 weeks of last quarter the mean annual death-rate in these towns averaged 14.5, against 14.7 per 1000 in the metropolis. Among the several towns the death-rate during the week ranged from 6.3 in Cambridge, 7.5 in Gillingham, 8.0 in Ilford, 8.2 in Ipswich, and 8.5 in East Ham, to 22.8 in Oldham, 24.3 in Plymouth, 25.1 in Wigan, 25.4 in Southport, and 35.6 in West Hartlepool.

The 5580 deaths from all causes were 138 in excess of the number in the previous week, and included 465 which were referred to the principal epidemic diseases, against 439 and 429 in the two preceding weeks. Of these 465 deaths, 210 resulted from measles, 81 from infantile diarrhoeal diseases, 70 from diphtheria, 56 from whooping-cough,

34 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.3, against 1.2 per 1000 in the previous week. The deaths attributed to measles, which had been 174, 155, and 181 in the three preceding weeks, further rose to 210 in the week under notice, and caused the highest annual death-rates of 1.9 in Huddersfield, 2.0 in Wakefield, 3.1 in Newcastle-on-Tyne, 3.2 in Plymouth, 4.0 in Grimsby, 4.3 in Merthyr Tydfil, 4.6 in Wigan, and 6.6 in Gateshead. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had declined from 138 to 71 in the four preceding weeks, rose to 81, of which 28 were registered in London, 7 in Birmingham, and 6 in Manchester. The fatal cases of diphtheria, which had been 77, 99, and 62 in the three preceding weeks, rose to 70, and included 18 in London and 3 each in West Ham, Portsmouth, Southampton, and Liverpool. The deaths attributed to whooping-cough, which had increased from 35 to 50 in the four preceding weeks, further rose to 56, and included 11 in London, 7 in Liverpool, 4 in Stoke-on-Trent, and 3 in Bristol. The deaths referred to scarlet fever, which had been 42, 30, and 48 in the three preceding weeks, fell to 34, of which 10 occurred in London, 5 in Manchester, 3 in Liverpool, and 2 each in Birmingham and Derby. The fatal cases of enteric fever, which had been 11, 13, and 17 in the three preceding weeks, fell to 14, of which 2 belonged to London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 5035, 4980, and 4893 at the end of the three preceding weeks, had further declined to 4763 on Saturday, Dec. 19th; 451 new cases were admitted during the week, against 623, 537, and 504 in the three preceding weeks. These hospitals also contained 1628 cases of diphtheria, 62 of enteric fever, 52 of measles, and 40 of whooping-cough, but not one of small-pox. The 1427 deaths from all causes in London were 87 in excess of the number in the previous week, and corresponded to an annual death-rate of 16.5 per 1000. The deaths referred to diseases of the respiratory system, which had been 324, 312, and 317 in the three preceding weeks, slightly fell in the week under notice to 314, but were 23 above the number registered in the corresponding week in 1913.

Of the 5580 deaths from all causes in the 97 towns, 203 resulted from different forms of violence and 441 were the subject of coroners' inquests, while 1557 occurred in public institutions. The causes of 58, or 1.0 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Leeds, Bristol, Bradford, Newcastle-on-Tyne, and in 55 other smaller towns. Of the 58 uncertified causes of death, 14 were registered in Liverpool, 9 in Birmingham, 6 in Bootle, 4 each in St. Helens and Gateshead, 3 in Stoke-on-Trent, and 2 in Tynemouth.

In the 97 English and Welsh towns 5859 births and 4882 deaths were registered during the week ended Saturday, Dec. 26th, 1914. The annual rate of mortality in these towns, which had been 15.3, 15.7, and 16.1 per 1000 in the three preceding weeks, declined to 14.0 per 1000 in the week under notice. During the first 12 weeks of last quarter the mean annual death-rate in these towns averaged 14.4, against 14.6 per 1000 in the metropolis. Among the several towns the death-rate during the week ranged from 5.6 in Eastbourne, 6.6 in Ealing, 7.0 in Wimbledon and in Hornsey, and 8.0 in Bournemouth, to 21.7 in Wigan, 21.9 in Newcastle-on-Tyne, 22.2 in St. Helens, 24.5 in Oldham, and 26.7 in West Hartlepool.

The 4882 deaths from all causes were 698 fewer than the number in the previous week, and included 411 which were referred to the principal epidemic diseases, against 429 and 465 in the two preceding weeks. Of these 411 deaths, 175 resulted from measles, 70 from infantile diarrhoeal diseases, 66 from diphtheria, 58 from whooping-cough, 30 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.2, against 1.3 per 1000 in the previous week. The deaths attributed to measles, which had been 155, 181, and 210 in the three preceding weeks, fell to 175, and caused the highest annual death-rates of 1.9 in Birkenhead, 2.6 in Gateshead, 3.4 in Wigan and in Newcastle-on-Tyne, 4.2 in Huddersfield, 4.3 in Merthyr Tydfil, and 7.3 in Grimsby. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 94, 71, and 81 in the three preceding weeks, declined to 70, and included 12 in London and 6 each in Stoke-on-Trent and Manchester. The fatal cases of diphtheria, which had been 99, 62, and 70 in the three preceding weeks, fell to 66, of which 13 were registered in London, 10 in Birmingham, and 3 each in Willesden, Stoke-on-Trent, Liverpool, and Bolton. The deaths attributed to whooping-cough, which had increased from 35 to 56 in the five preceding weeks, further rose to 58, and included 9 in London, 5 in Nottingham, 4 in Rhondda,

and 3 each in Bristol, Stoke-on-Trent, Leeds, Newcastle-on-Tyne, and Merthyr Tydfil. The deaths referred to scarlet fever, which had been 30, 48, and 34 in the three preceding weeks, further fell to 30, of which 6 belonged to London, 4 to Preston, 3 to Sheffield, and 2 each to Birmingham and Newcastle-on-Tyne. The fatal cases of enteric fever, which had been 13, 17, and 14 in the three preceding weeks, further declined to 12, but showed no excess in any particular town.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 5035 to 4763 in the four preceding weeks, had further fallen to 4583 on Saturday, Dec. 26th; 348 new cases were admitted during the week, against 537, 504, and 451 in the three preceding weeks. These hospitals also contained on Dec. 26th 1633 cases of diphtheria, 71 of enteric fever, 56 of measles, and 42 of whooping-cough, but not one of small-pox. The 1109 deaths from all causes in London were 317 fewer than the number in the previous week, and corresponded to an annual death-rate of 12.8 per 1000. The deaths referred to diseases of the respiratory system, which had been 312, 316, and 314 in the three preceding weeks, further declined to 270, and were 37 below the number registered in the corresponding week in 1913.

Of the 4882 deaths from all causes in the 97 towns, 192 resulted from different forms of violence, and 412 were the subject of coroners' inquests, while 1243 occurred in public institutions. The causes of 56, or 1.1 per cent., of the total deaths were uncertified, and included 15 in Birmingham, 7 in Liverpool, and 2 each in Coventry, Nottingham, Warrington, Blackpool, South Shields, Newcastle-on-Tyne, Tynemouth, and Carlisle. All the causes of death were duly certified in London and in 13 of its 14 suburban districts, in Manchester, Sheffield, Leeds, Bristol, Bradford, and in 50 other smaller towns.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of 1914, 1140 births and 791 deaths were registered during the week ended Saturday, Dec. 19th. The annual rate of mortality in these towns, which had been 18.4, 18.3, and 17.7 per 1000 in the three preceding weeks, rose to 18.0 per 1000 in the week under notice. During the first 11 weeks of last quarter the mean annual death-rate in these towns averaged 16.4, against 14.5 per 1000 in the 97 large English towns. Among the several towns the death-rate during the week ranged from 9.4 in Falkirk, 12.2 in Hamilton, and 12.6 in Motherwell, to 19.6 in Aberdeen, 24.1 in Greenock, and 32.2 in Perth.

The 791 deaths from all causes were 11 in excess of the number in the previous week, and included 81 which were referred to the principal epidemic diseases, against 79 and 76 in the two preceding weeks. Of these 81 deaths, 35 resulted from whooping-cough, 17 from scarlet fever, 15 from infantile diarrhoeal diseases, 9 from diphtheria, 3 from measles, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.8, against 1.3 per 1000 in the 97 large English towns. The deaths attributed to whooping-cough, which had increased from 7 to 32 in the five preceding weeks, further rose to 35, of which 24 were registered in Glasgow, 5 in Dundee, and 2 each in Greenock and Clydebank. The deaths referred to scarlet fever, which had been 25, 15, and 14 in the three preceding weeks, rose to 17, and included 11 in Glasgow and 2 each in Edinburgh and Aberdeen. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had declined from 31 to 8 in the eight preceding weeks, rose to 15; 6 deaths occurred in Glasgow, 3 in Dundee, and 2 each in Aberdeen and Greenock. The deaths attributed to diphtheria, which had been 13, 20, and 16 in the three preceding weeks, further fell to 9, and included 3 each in Glasgow and Edinburgh. The 3 deaths referred to measles, comprising 2 in Dundee and 1 in Glasgow, were equal to the average in the earlier weeks of the quarter. The fatal cases of enteric fever were registered in Glasgow and Aberdeen.

The deaths referred to diseases of the respiratory system, which had been 163, 163, and 154 in the three preceding weeks, rose to 169 in the week under notice; 36 deaths resulted from various forms of violence, against 34 and 23 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,205,280 persons at the middle of 1914, 593 births and 503 deaths were registered during the week ended Saturday, Dec. 19th. The annual rate of mortality in these towns, which had increased from 17.7 to 21.1 per 1000 in the five preceding weeks, further rose to 21.8 per 1000 in the week under notice. During the first 11 weeks of last quarter the mean annual death-rate in these

towns averaged 18.1, against corresponding rates of 14.5 and 16.4 per 1000 in the English and Scotch towns respectively. The annual death-rate in the week under notice was equal to 24.7 in Dublin (against 16.5 in London and 18.9 in Glasgow), 18.3 in Belfast, 27.2 in Cork, 15.2 in Londonderry, 20.3 in Limerick, and 22.8 in Waterford, while in the 21 smaller towns the mean death-rate was 22.2 per 1000.

The 503 deaths from all causes were 15 in excess of the number in the previous week, and included 46 which were referred to the principal epidemic diseases, against 42 and 43 in the two preceding weeks. Of these 46 deaths, 15 resulted from infantile diarrhoeal diseases, 10 from scarlet fever, 8 from measles, 6 from diphtheria, 5 from whooping-cough, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.0, against 1.3 and 1.8 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 10, 12, and 17 in the three preceding weeks, fell to 15, of which 6 were recorded in Dublin, 5 in Belfast, and 2 in Cork. The deaths referred to scarlet fever, which had declined from 14 to 8 in the five preceding weeks, rose to 10, and comprised 7 in Belfast, 2 in Dublin, and 1 in Waterford. The fatal cases of measles, which had been 14, 8, and 12 in the three preceding weeks, fell to 8, and included 7 in Belfast and 1 in Dublin. The 6 deaths attributed to diphtheria, of which 4 occurred in Dublin and 2 in Kilkenny, were double the average in the earlier weeks of the quarter. The five deaths referred to whooping-cough were all recorded in Belfast, and were slightly in excess of the average in recent weeks. The fatal cases of enteric fever were registered in Belfast and Ballymena. In addition to the above, a death from typhus was recorded in Galway.

The deaths referred to diseases of the respiratory system, which had been 100, 90, and 120 in the three preceding weeks, fell to 105 in the week under notice. Of the 503 deaths from all causes, 136, or 27 per cent., occurred in public institutions, and 13 resulted from various forms of violence. The causes of 21, or 4.2 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner after inquest; in the 97 large English towns the proportion did not exceed 1.0 per cent.

DONATIONS AND BEQUESTS.—By will the late James Brebner, of Wallington, Surrey, has left the larger part of his estate, which is of the value of £32,000, to be divided among certain charities. The following will receive an eleventh share each, viz.:—Hospital for Sick Children, Aberdeen; Cancer Hospital, Brompton; Hospital for Sick Children, Great Ormond-street; Royal Hospital for Incurables; and Royal Infirmary, Aberdeen.—The late Mr. H. L. Hargraves, J.P., of Oldham, left £5000 for the Endowment Fund of the Oldham Royal Infirmary.

UNIVERSITY OF EDINBURGH.—The graduation ceremony in medicine in connexion with the University was carried through in the McEwan Hall on Dec. 18th, 1914, Principal Sir William Turner presiding and conferring the degrees. In addition to the degrees in medicine one diploma was given in tropical medicine and hygiene. Addressing the graduates after he had conferred the degrees, Sir William Turner said he sometimes thought that the relation of the medical profession to the nation was very different now from what it was when he took his degree. In that somewhat distant time the medical profession looked for its work and its rewards in what was called private practice. There was very little public practice in those days. Now they had a highly organised public service, finding its work in the great towns and in country districts and in the supervision of the health of the industrial classes. All this had added naturally to the demand for highly trained medical men; what was aimed at nowadays was not only the treatment of disease but the prevention of disease. Referring to the number of graduates in uniform, he said that the nation knew that they had reached now a state in which the military life required a much greater number of the medical profession than what was needed in time of peace. There was, therefore, a special need that the young graduates of to-day who had not settled on a definite line of practice should consider how they could meet the arrangements of the nation in that respect. He also referred to the difficulties created in the country districts by the doctors being called away on military service, and said it was incumbent on the graduates to remember this aspect of their duty.

Correspondence.

"Audi alteram partem."

CIVIL MEDICAL PRACTICE AND THE WAR.

To the Editor of THE LANCET.

SIR,—At the instance of the Executive Committee of the General Medical Council proposals were recently submitted to the military authorities, the object of which was to improve the existing arrangements for Territorial Force Medical Officers. Many of these, owing to enforced changes of station, have been prevented from devoting part of their time to ordinary practice in their own districts; and in some localities the civil population has suffered from the resulting deficiency of medical services. Senior medical officers attached to Territorial General Hospitals in their own towns are able to combine, in some measure, their consulting, operative, or specialist practice with their local military duties; but regimental surgeons must accompany their units to training or other centres, which are often far removed from the parts of the country in which they practise, for service duties which do not always occupy their whole time.

It was suggested that, when a mobilised unit is moved from its own locality in this country, the Territorial Medical Officer might be allowed to effect an exchange, direct or indirect, with a Territorial Medical Officer in the new locality; or that, when such an exchange is not feasible, the place of the medical officer who does not desire to accompany his unit might be taken by a junior practitioner willing to accept a temporary commission, and to serve with the unit in question. In the latter case the original officer might be demobilised until his unit returned to its own locality, or until his military services could be otherwise utilised.

Again, numerous cases have occurred in which a mobilised Territorial unit has volunteered for Imperial service abroad (not necessarily at the front or even in Europe). In the absence of any provision for exchange the medical officer of such a unit would naturally feel constrained to follow it overseas, though his age and previous experience might be such as to render him less fit than a junior colleague for the special service required. It was accordingly proposed that in this instance the medical officer should have the option either of accompanying his unit or of serving with the corresponding reserve unit raised for home defence instead.

It was known that at the War Office a list is kept of junior practitioners who are willing to accept commissions for general service either at home or abroad, and the suggestion was offered that from this "waiting list" of practitioners who are eagerly desirous of "seeing service," substitutes for senior practitioners engaged in civil practice at home might be detailed as occasion arose. In this way it seemed practicable to minimise the inconveniences experienced both by practitioners and by their civil patients; and at the same time to utilise without delay the numbers of junior qualified men who have applied for commissions and are more or less idly awaiting a call for their services.

I have the satisfaction to state that the foregoing proposals have now been officially approved, and that arrangements are being made by the Army

medical authorities to bring about the results desired by the Executive Committee of the Council.

I am, Sir, yours faithfully,

DONALD MACALISTER,

President, General Medical Council.

Medical Council Office, Oxford-street, W., Dec. 30th, 1914.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—My attention had been drawn to the absence from Messrs. Churchill's Medical Directory for 1915 of the usual list of practitioners resident abroad. I am glad that this omission is being reconsidered, and I trust it may be rectified. Insurance offices throughout the kingdom possess and naturally consult the Medical Directory for references to practitioners possessing English qualifications resident abroad, and it is a considerable deprivation to such practitioners as well as a great inconvenience to life offices to be debarred from the means of such references. In sending patients abroad, also, a physician naturally looks up the Directory to find doctors with English qualifications to whom he can refer them. Moreover, it seems natural and right that the standard Medical Directory should contain the names of all possessing British qualifications whether at home or abroad.—I am, Sir, yours faithfully,

R. DOUGLAS POWELL,

Deputy Chairman, Clerical, Medical, and General Life Assurance Society.

Portland-place, W., Dec. 28th, 1914.

* * We learn this week from Messrs. Churchill that in the issue of the Medical Directory for 1916 the list of Practitioners Resident Abroad will be reinstated.—ED. L.

THE TREATMENT OF WOUNDS IN WAR.

To the Editor of THE LANCET.

SIR,—Surgeons who are treating wounds on this side of the Channel will welcome Sir Anthony Bowlby's contribution to the above discussion in THE LANCET of Dec. 19th last. It should remove any doubts which may exist in reading Sir Watson Cheyne's paper, that surgeons out here are employing "aseptic" surgery as opposed to "antiseptic," and it will, I hope, bring home to captious critics the fact that "war is war and the surgery of war is not the surgery of peace." In this hospital we receive wounded direct by ambulance trains from the collecting stations, and it would be difficult to praise too highly the work done there as we see it here.

It is interesting to compare the wounds which I see at the base here with those which I saw at the base during Methuen's advance in the early part of the South African War. Probably 95 per cent. of the cases were bullet wounds, and the remainder shrapnel or shell fragment wounds. The great majority of the wounds of soft parts were dry, and had practically healed by the time they reached the base. Among these there would be a certain number of injuries to nerves and to main vessels which required operative treatment. When bones were injured the exit wound was often "explosive," yet many of these were clean; in some instances bones were actually perforated without complete fracture and without explosive exit. In some instances perforating wounds of the skull (chiefly in the frontal region) survived to find their way to the base.

By contrast, the trainloads that arrived here early in November conveyed more shell wounds than

bullet wounds, and more wounds from shell fragments than shrapnel. All shell wounds were septic. A small proportion of the penetrating bullet wounds of soft parts were of the South African type—i.e., clean, with small entry and exit and without intermediate laceration from axial rotation of the bullet; the majority were septic with intermediate laceration and irregular exit. In the non-explosive wounds injuries to the main vessels and nerves seem to be rare. Simple penetrating bone wounds are unknown, and the comminuted fractures are far worse both in extent and as regards sepsis. Penetrating wounds of the brain seldom reach the base, but gutter fractures (and in every case bone fragments are driven inwards) of the skull are quite common. More recently, as the result of increased entrenchment and siege warfare, bullet wounds have increased in their proportion to shell wounds. The clean penetrating and non-explosive wounds have, so far as I have seen, always been produced at short range. At longer ranges apparently the slightest deviation of impact from the normal to the surface results in rotation of the bullet on its transverse axis as it impinges, followed by churning up of the soft parts with laceration of the skin at exit. At very long ranges this same condition may be observed and confirmed by the retention of the bullet. The comparative frequency of gutter fractures of the skull is probably also explained by impact deviation. The difference between the wounds of soft parts here and in South Africa is doubtless due to the pointed bullet with its centre of gravity near the base as opposed to the dome-shaped Mauser bullet with its centre of gravity near the middle. It seems possible that the pointed bullet (when it does not rotate and lacerate) pushes its way past the main vessels and nerves rather than cuts its way through with injury to vessel and nerve. In other instances it will, as I have seen, penetrate a nerve of smaller diameter than itself and leave the continuity of the nerve intact, which would not be possible with the Mauser bullet. In the case referred to the bullet passed through the outer head of the median and the posterior cord of the brachial plexus without severing the nerves (though producing paralysis).

As regards sepsis, Sir A. Bowlby makes it clear that it is the highly fertilised soil as opposed to the sun-dried veld dust, trench warfare as opposed to skirmishing at long range, and the preponderance of devastating gun fire over rifle fire, which are the determining factors rather than the surgery or want of surgery at the front.

As regards the infection, apart from anaerobes, streptococcal and coli infections are fairly common; an initial staphylococcal infection is rare.

I am, Sir, yours faithfully,

C. GORDON WATSON.

Duchess of Westminster Hospital, Le Touquet, Dec. 24th, 1914.

ALCOHOL AND THE WAR.

To the Editor of THE LANCET.

SIR,—You were good enough to publish in your issue of Nov. 21st, 1914, an account of the conference which took place on Nov. 12th, under the presidency of His Grace the Archbishop of Canterbury, to consider the subject of alcohol and the war. Since then I have been appointed honorary secretary of the Central Emergency Committee which was formed by the conference in order to secure the carrying out of the resolutions which were passed by that influential gathering. It should be remembered that the conference was called together

in order to support Lord Kitchener's appeal to the nation, issued through the Press Bureau, asking that the public should "help the soldiers," and especially urging that steps should be taken to educate public opinion in this matter. It is clear that Lord Kitchener had in his mind something beyond the ordinary risks which are associated with alcoholism, and when we refer to his message to the troops at the outset of the war we find that he warned them against the temptations connected with "wine and women," and said, "You must entirely resist both temptations." Major Darwin, as an old soldier and as one who has interested himself in the many difficult problems which bear upon the health and well-being of the nation, referred in his speech at the conference to the appalling connexion between alcohol and venereal disease and the special conditions which had been created by the war, including the crowding together of large masses of men in centres unaccustomed to receive them.

This is but one aspect of a great question, but I mention it because I consider that a grave responsibility rests upon the medical profession in this matter. That the profession is rising and will rise to the occasion I do not doubt for a moment, and the speeches of Sir Thomas Barlow and Sir T. Clifford Allbutt at the conference as already reported by you were of the greatest value. I venture, however, to appeal earnestly to medical men and medical women throughout our land to join in giving that support to Lord Kitchener's appeal which is needed at this moment. Every lord mayor and mayor, and chairmen of district councils have received an appeal from the Central Emergency Committee to take part in this movement in the hope that local emergency committees will be formed in each locality to ensure that the nation may respond to the call which comes to them to assist in promoting the utmost efficiency of all classes at this critical time.—I am, Sir, yours faithfully,

CHARLES F. HARFORD, M.D. Cantab.,
Honorary Secretary, Central Emergency Committee.
Paternoster House, E.C., Dec. 21st, 1914.

ANTISEPTIC TREATMENT OF WOUNDS.

To the Editor of THE LANCET.

SIR,—I have followed with great interest and instruction the various contributions to THE LANCET on the treatment of septic wounds, and although it is needless to say that the question of wounds in war is at the moment of paramount importance and interest, I feel there is an aspect of the question relating to both wounds in war and civil life which at any rate has not been settled by your correspondents. I refer to the place of iodine as an antiseptic. Iodine in alcohol as the ordinary tincture or in 2 per cent. solution—is it or is it not an effective destroyer of organisms and their spores?

I am perfectly well aware that Sir Watson Cheyne says it is not; that he says, indeed, it is the equivalent of only a 1 in 50 solution of phenol. Naturally I regard this considered pronouncement of so distinguished a surgeon with the greatest respect, but I venture to suggest that if this knowledge is shared by many of his colleagues it is certainly ignored.

Take, for example, the gynaecologist who uses it and swabs out the interior of a uterus which has been the source of an endless discharge; or Sir Anthony Bowlby, whose practice it is "to paint the skin far around with 2 per cent. iodine in spirit";

or the general practitioner who treats practically all wounds with the freest of applications of iodine and dry dressings.

Only the other day I was speaking to a surgeon on the staff of one of our greatest hospitals. I asked him how wounds were treated in the casualty department—was it with iodine and dry dressings? "That's it," he said. "What then," said I, "if 2 per cent. iodine is only a germicide like 1 in 50 carbolic?" "Oh," he answered, "that would be an awful pity, because we have all pinned our faith to it so." There is the whole point. Have we been right or wrong in pinning our faith to it so?

If wrong, so far as I am concerned, I do not want to hunt for this, that, or the other vaunted remedy. I shall go back to phenol pure for the wound and 1 in 20 for the surrounding parts. But I confess if we are wrong I shall be disappointed. Iodine is so quick in application, so simple, and, strange to say, so successful. Nevertheless, if it is established that its use is unsafe because of its feeble antiseptic powers, let us do away with it, because, as I have tried to show, its use has become "the method of choice" with so many. It should be for them now to establish or otherwise its effectiveness.

I am, Sir, yours faithfully,

ALEXANDER BROWN, M.B. Lond.

London, N.W., Dec. 19th, 1914.

HYALINE CASTS IN THE URINE.

To the Editor of THE LANCET.

SIR,—The interesting annotation in your issue of Dec. 26th last on the origin and nature of granular and hyaline renal casts leads me to think it worth while to ask the question, "What is the value of hyaline casts in the urine as an indication of renal disease, or even of renal disturbance?" After many years' observation I can say that they are to be found so often in the sediment of the centrifugised urine, without any other evidence of renal disease, that they may often be passed by as of no moment, and I even venture to doubt if many of them come from the kidney at all. If there be no other evidence of renal disturbance they may, I think, be neglected. Surely they cannot all be washed out blood casts. Might not many of them be mucinous, and added to the urine in transit, and, if so, how distinguish between those of renal origin and those that are extraneous?

I am, Sir, yours faithfully,

JAMES F. GOODHART.

Dec. 26th, 1914.

A MINISTRY OF PUBLIC HEALTH.

To the Editor of THE LANCET.

SIR,—The leading article in THE LANCET of Dec. 19th, 1914, on the necessity for a Ministry of Public Health will be welcomed by many interested in public health. At the present time matters relating to public health are the concern of at least three different bodies—viz., the Board of Education, the Local Government Board, with its Public Health and Poor-law Departments, and the National Health Insurance Commission. That overlapping of the duties of these various bodies, considerable as it is, does not take place to a greater extent must be the result of the earnest desire for coöperation and

coöperation on the part of the chief medical officials responsible for the work of the several bodies. It would seem obvious that to coöperate the work of these several bodies another body, the Ministry of Public Health, should be instituted.

The present crisis has accentuated in the minds of the public the extreme importance of the health of the nation. Whether the individual rely in the future for the maintenance of our place among nations on force of arms or efficiency in manufacture or trade, all are at one on the necessity for the physical fitness of the inhabitants of the Empire. When peace is restored the attention of the public will be fixed in an increased degree on the measures necessary to obtain this result. The scope of the work of medical officers engaged in public health duties will be increased and a high degree of efficiency demanded.

But the present conditions as regard training, appointment, and service do not make for efficiency. The rapid headway made by the present movement for the improvement of the status of the medical officers actually engaged in the work of medical inspection of school children is a proof, if any were wanted, of the need for overhauling the whole system and the formation of a Public Health Service on the lines of the Naval, Military, and Indian Medical Services, with due regard to the principles of local government. This duty can only be undertaken by a Ministry of Public Health.

I am, Sir, yours faithfully,

Brighton, Dec. 21st, 1914.

C. W. HUTT.

VACCINES AND THE GERMAN RAID: A USEFUL ANALOGY.

To the Editor of THE LANCET.

SIR,—The recent raid on the Yorkshire coast seems to provide so good an analogy to the action of vaccines on the human body that it may serve to clarify our ideas on the indications and contra-indications for vaccine treatment. The Germans obviously play the part of the germs which have invaded the body, while leucocytes are fairly comparable with the soldiers of the invaded country.

Let us consider the Yorkshire coast as the site of the injection of a vaccine into England. Here, as elsewhere, the young men, specially of the rural districts, have shown symptoms of lethargy and have not converted themselves into leucocytes as freely as they might have done. (I take the liberty of alternating the metaphor freely.) The injection of toxins by battleships into the superficial English tissues in Yorkshire will certainly result in a marked local leucocytosis, and these leucocytes will join the general blood stream and increase the general resisting powers of the body. If not the immunisation machinery of the body is in a very unhealthy state.

Again, when an efficient dose of vaccine is injected under the skin a red, angry lump is quickly formed at the site of injection consisting of leucocytes and antibodies antagonising the injected toxins. Doubtless we shall soon see some such local response in the case of our coast towns, taking the form of local levies or guns. But this raid illustrates also what I feel to be a further action of a vaccine—viz., that the injection of a proper dose of bacterial toxins acts as a circulating signal to rouse the defences of the whole body to a sense of the reality of invasion. And this is generally

made evident to the patient by a sense of stimulation and well-being in addition to his increased success in his war against the bacterial enemy.

To illustrate the contra-indications to vaccine treatment, imagine that England had already turned every man into a soldier and had spent all her money and resources in fighting the enemy. What would be the effect of a bombardment of coast towns then? It would merely add to the general havoc and could have no beneficial effect, because the whole nation had already been roused and could do no more. For the same reason I hold (with the majority) that it is useless or harmful to inject vaccines or tuberculin in the presence of an acute general bacterial infection when the body is already swamped with toxins and its defences already thoroughly aroused or even overwhelmed. Yet this is frequently done.

But Britain is in exactly the opposite state to this, and illustrates the condition in which a vaccine would be prescribed to arouse unexploited powers of resistance. And I can still say this, even although I have had the real grimness of the local situation brought home to me by a visit to Scarborough on the day following the bombardment.

Till further evidence is forthcoming I believe that the fundamental indication for a vaccine is when it may be expected to rouse dormant resisting powers.

I am, Sir, yours faithfully,

Hull, Dec. 21st, 1914.

FRANK C. EVE.

WORKMEN'S COMPENSATION IN INJURIES OF THE EYE.

To the Editor of THE LANCET.

SIR,—In the ophthalmology section of your review of medicine during 1914 I confess I am rather dismayed to find no mention of the important discussion on "Workmen's Compensation in Injuries of the Eye," which took place at the last meeting of the Oxford Ophthalmological Congress (July, 1914). It was opened by Mr. William Robinson, and important papers dealing with the subject were read by Dr. Frank Shufflebotham, Mr. Angus MacNab, Mr. J. Jameson Evans, Mr. John Gray Clegg, Mr. G. H. Pooley, and Mr. R. J. Coulter. The majority of the foregoing communications were published in the *Ophthalmoscope* of September, 1914.

I am, Sir, yours faithfully,

SYDNEY STEPHENSON,

Welbeck-street, W., Dec. 28th, 1914. Master of the Congress.

AN IMPROVED (DOYEN'S) MOUTH GAG.

To the Editor of THE LANCET.

SIR,—There are many modifications of Doyen's original pattern, which is still sold by some makers. It was worked by a rack-catch (like artery forceps) instead of a ratchet and spring, so that its sudden release was sometimes difficult or impossible. Most of Mr. Charles Heath's objections¹ may be obviated by care. The guarding of the ratchet is, however, a distinct improvement on most patterns. In the one I use it is guarded by the (spiral) spring.

Nipping of the lower lip is a misfortune I used to find impossible always to avoid (especially with unruly children) when the gag has to be put in before induction of anaesthesia, as is necessary when using nitrous oxide or ethyl chloride alone. I have found it may be prevented by a piece of rubber about one-twentieth of an inch thick cut

¹ THE LANCET, Dec. 19th, 1914, p. 1422.

into the shape of a shield about three-quarters of an inch (less for a child) from top to bottom, with a horizontal slit near the top by which it may be fitted on the lower jaw of the gag, so that it will hang between the lower lip and teeth.

In Mr. Heath's model there is a shallow groove for the reception of the teeth, but I doubt whether this will prove always to be effectual.

I am, Sir, yours faithfully,

J. D. MORTIMER, M.B. Lond., F.R.C.S. Eng.

Anæsthetist, Central London Throat Hospital, &c.
Clifton Hill, N.W., Dec. 28th, 1914.

STRETCHERS FOR THE WOUNDED IN TRENCHES.

To the Editor of THE LANCET.

SIR,—Captain G. K. Aubrey, in his interesting description of the "Fusilier" trench stretcher in THE LANCET of Dec. 26th, asks for suggestions from your readers which might assist in the solution of a point which, I think I am justified in saying, had not occurred to the majority of ambulance workers.

That severely wounded men should have to wait for assistance until nightfall, and that even then bearers should run the greatest risk of being shot, is a state of affairs which makes the provision of some method of transport which can be carried out during the daytime under the shelter of the trench of the greatest importance.

It occurs to me on reading his useful communication that in emergency an ordinary wheel-barrow could be adapted for the purpose of negotiating the sharp turns of the spurs thrown out to protect the trench from enflading fire. Shallow troughs could be fixed on either side of the wheel, and in these the patient's legs could be laid. Where the bearer company was insufficient to deal with large numbers of the wounded, it would be possible to manage a case with only one bearer.

During the wet weather the depth of mud at the bottom of the trench might prevent any wheel conveyance being used with success; but in that case stretchers can be constructed by lashing short poles to an ordinary chair. The space between the front legs can be filled in by a piece of canvas stretched across, or by having some battens nailed to them. If the poles are lashed somewhat obliquely from below, upwards and backwards, the patient will have a reclining tilt when being carried. A rope lashed from the front legs to the back of the chair would prevent an insensible person from falling out sideways during transport.

I am, Sir, yours faithfully,

Dec. 29th, 1914.

W. J. M. E.

THE MALLOCK-ARMSTRONG EAR-DEFENDER.

To the Editor of THE LANCET.

SIR,—Understanding that inquiries have been made at THE LANCET for further particulars as to the Mallock-Armstrong Ear-Defender, of which a notice with illustration appeared in your issue of Dec. 26th, 1914, I wish to say that I shall be pleased to furnish full particulars.

The price at which the 1915 pattern is retailed is 4s. per pair in a pocket-case of convenient form.

I am, Sir, yours faithfully,

H. N. G. COBBE.

86, York-street, Westminster, S.W., Dec. 30th, 1914.

Obituary.

BERNARD PITTS, M.A., M.B., M.C. CANTAB.,
F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL AND THE HOSPITAL
FOR CHILDREN, GREAT ORMOND-STREET.

IN the death of Mr. Bernard Pitts British surgery has to mourn the loss of one who in several ways was an ornament to his profession, the more so that being of an unostentatious disposition he never courted publicity or advancement.

Bernard Pitts was educated at Jesus College, Cambridge, and St. Thomas's Hospital. In 1875 he took his M.B. degree at Cambridge and also proceeded to the M.A. In the same year he became a Member of the Royal College of Surgeons of England, taking the Fellowship two years later. In 1876 he served as a medical officer during the Turco-Servian War. Returning to London he was appointed resident assistant surgeon to St. Thomas's Hospital in 1878, becoming full surgeon in due course. He retired from the active surgical staff in 1908 and was appointed consulting surgeon to the hospital. He had been lecturer on surgery at St. Thomas's, and his labours on behalf of the hospital, both as surgeon and teacher, were indefatigable. He had also served as surgeon to the Hospital for Children, Great Ormond-street, from which hospital also he retired in 1908, both retirements being occasioned by his failing health. He had been examiner in surgery at the Universities of Cambridge and Durham, and was a member of the Court of Examiners at the Royal College of Surgeons of England. He was one of the pioneers in this country of abdominal surgery in the treatment of intestinal diseases, while to his experience gained at the Great Ormond-street Hospital must be largely ascribed his lectures on the surgery of the air passages in children, delivered before the Royal College of Surgeons of England and published in our columns in 1893.

One of Mr. Pitts's colleagues writes: "Twenty-five years ago the profession in London knew Bernard Pitts well. He was known for his strong character, for his sagacity and judgment in difficult surgical emergencies, and for his great ability as an operating surgeon. He was at that time of very powerful build and delighted in outdoor exercise. In his early surgical life he was a pioneer in the treatment of acute obstruction, of growths in the bladder, of intussusception and of several other diseases of childhood. A certain shyness of notoriety and a robust contempt for advertisement prevented his merits being known except to a limited circle of intimate friends and pupils. For many years before the release of death came to Bernard Pitts it was his fate to travel along the valley of weakness, of illness, and of much suffering. Yet he always had a smile on his face, no word of complaint ever passed his lips, and his spirit remained undaunted and unconquered. Bernard Pitts was one of those of whom it is written, 'These are they which came out of great tribulation.' He died in the Faith."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING Christmas week the subscriptions to this Fund were very good, and there have been several important announcements of local activity, showing that interest in the movement is spreading.

A meeting of the Executive Committee was held on Tuesday, Dec. 22nd, when the question of assisting Belgian refugees, being medical men or pharmacists, with money again came up for discussion, it being felt in the Committee that the Fund should not be depleted by providing for any refugees the assistance which the Government had undertaken to supply, though in proper cases assistance should be granted. The distribution of money has now commenced.

A meeting of the Subcommittee, empowered for the present to make emergency grants was held at THE LANCET Office on Wednesday, Dec. 23rd, when Dr. Clément Philippe attended, and made applications, backed by the Belgian Medical Society in London, for relief of distress in certain cases. The Subcommittee made all the grants requested by Dr. Philippe save one, and also guaranteed the ordering of clothes in certain cases where it had been impossible to obtain the garments from charitable sources.

Action in Canada and the United States.

Sir Rickman Godlee has received information that a central committee for the relief of Belgian medical men and pharmacists has been organised in Toronto, while a similar movement has been taken in New York. The action in the United States, which has followed in a gratifying manner upon representations made by the British Committee, promises fair to be large and fruitful. Among those who have already identified themselves with the movement are: Dr. Charles H. Mayo, of Rochester, Minn.; Dr. Franklin Martin, of Chicago; Dr. William L. Rodman, President of the American Medical Association; Dr. J. M. T. Finney, of Baltimore, President of the American College of Surgeons; Dr. George H. Simmons, Editor of the *Journal of the American Medical Association*; and Dr. Thomas L. Stedman, Editor of the *Medical Record*.

The Scottish Committee.

The Scottish Committee of the Belgian Doctors' and Pharmacists' Relief Fund has now been completed and includes the Scottish representatives on the general committee, viz.:—

The Presidents of the three Scottish medical corporations.

Sir Thomas R. Fraser, Professor of Materia Medica, Edinburgh University.

David Gilmour, Dunfermline, Member of Council, Pharmaceutical Society.

J. Rutherford Hill, Resident Secretary, Pharmaceutical Society, Edinburgh.

Sir Donald MacAlister, K.C.B., Principal of Glasgow University.

Dr. J. Y. Mackay, Principal of University College, Dundee.

Dr. J. C. McVail, Crown nominee on General Medical Council.

Dr. William Russell, Professor of Clinical Medicine, Edinburgh University.

Dr. Norman Walker, Treasurer, Royal College of Physicians of Edinburgh.

METROPOLITAN HOSPITAL SUNDAY FUND.—

At a meeting of this Fund held at the Mansion House on Dec. 22nd, 1914, it was decided to hold Hospital Sunday, 1915, on June 13th.

Dr. T. K. Monro, Professor of Medicine, Glasgow University.

The following medical men and pharmacists have joined the Committee:—

Dr. John Adams, Member of Council of the British Medical Association.

Sir George T. Beatson, K.C.B., Chairman Scottish Branch, British Red Cross Society.

Sir Halliday Croom, Professor of Midwifery, Edinburgh University.

Dr. W. G. Dun, Treasurer, Royal Faculty of Physicians and Surgeons, Glasgow.

Mr. James L. Ewing, LL.D., Member of Pharmaceutical Society.

Mr. J. P. Gilmour, Chairman of North British Branch of Pharmaceutical Society.

Dr. John Gordon, President, Aberdeen Branch, British Medical Association.

Dr. J. R. Hamilton, Chairman of Scottish Committee, British Medical Association.

Dr. R. McKenzie Johnston, Treasurer, Royal College of Surgeons of Edinburgh.

Dr. Ashley W. Mackintosh, Professor of Medicine, Aberdeen University.

Dr. John Playfair, President, Edinburgh Branch, British Medical Association.

Dr. J. Scott Riddell, M.V.O., Senior Surgeon, Aberdeen Royal Infirmary.

Dr. Ralph Stockman, Professor of Materia Medica, Glasgow University. The honorary secretaries are

(for Edinburgh and East of Scotland), R. Cranston Low, M.B., (for Glasgow and West of Scotland) J. Walker Downie, M.B., and J. Rutherford Hill, Resident Secretary, Pharmaceutical Society.

Subscriptions to the Fund should be sent direct either to the treasurers of the three Scottish corporations or to Mr. J. Rutherford Hill, Resident Secretary, Pharmaceutical Society, Edinburgh.

The Provisional Brussels Committee.

The following is the composition of the Provisional Belgian Committee in Brussels which is attempting to deal with the terrible misfortunes that have overtaken their colleagues, and with which it is the aim of the British Committee to coöperate:—

M. G. Bruylants, Professor at the University of Louvain, President of the Academy of Medicine.

Dr. O. Vanderlinden, Dean of the Faculty of Medicine of Ghent.

M. M. Delacre, Professor of Chemistry at the University of Ghent.

Dr. L. Frédéricq, Dean of the Faculty of Medicine of Liège.

M. A. Gilkinet, Professor of Pharmacy at the University of Liège.

Dr. A. Brachet, President of the Faculty of Medicine of Brussels.

M. A. Herlant, Professor of Pharmacy at the University of Brussels.

Dr. Herman, President of the Belgian Medical Federation.

M. Haazen, President of the National Union of Pharmacy.

Dr. Dejace, Chief Editor of the *Scalpel* at Flenalle.

*Dr. H. Coppez, Chief Editor of the *Journal Médical de Bruxelles*, and Professor at the University of Brussels.

Dr. De Busscher, Chief Editor of the *Belgique Médicale*.

Dr. Van Hassel, Surgeon at Paturages.

*Dr. C. Jacobs, Professor at the University of Brussels.

*Dr. V. Péchère, Professor at the University of Brussels.

*Dr. R. Sand, Professor at the University of Brussels.

*Dr. Dubois Havenith, Professor at the University of Brussels.

*M. A. Delacre, Pharmacist, President of the General Pharmaceutical Council.

*M. Breugelmans, General Secretary of the National Union of Pharmacy.

*M. Coels, Pharmacist.

The names preceded by an asterisk denote the Executive Committee.

The British Fund.

The subscriptions which have been received up to Tuesday evening last by Dr. Des Vœux, in addition to £2100 previously acknowledged, are as follows:—

£	s.	d.	£	s.	d.		
Dr. W. Haward	1	1	0	Dr. C. J. Evans	0	10	0
Dr. J. Elsdale Molson	5	0	0	Dr. Baseter	0	10	0
Dr. J. Wm. Roberts	1	1	0	Dr. Gainer	1	1	0
Dr. G. I. Dudley	1	1	0	Dr. Wickham	0	10	0
Dr. Alfred Brown	3	3	0	Dr. Mason	1	0	0
Dr. Edward Law	2	2	0	Dr. Easte	0	10	0
Dr. Chas. Buttar	1	1	0	Dr. Allinson	0	10	0
Dr. Thos. McCrick	1	1	0	Dr. C. H. Wright	0	10	0
Dr. J. R. Currie	2	2	0	Dr. E. T. Milner	0	10	0
Sir James A. Russell	3	3	0	Dr. Oldacres	0	10	0
Mr. F. Guthrie	2	2	0	Dr. Baird	0	10	0
Mr. A. McMillan	2	2	0	Dr. Churchouse	0	10	0
Mr. J. B. McVital	2	2	0	Dr. E. A. Sanders	2	2	0
Mr. G. S. Kitchin	1	1	0	Dr. Greenfield	0	10	0
Mr. W. McCallum	1	1	0	Dr. O. Harvey	0	10	0
Mr. John Weir	1	1	0	Dr. Selby	0	10	0
Mr. J. H. Murphy	0	10	0	Dr. D. Stewart	1	1	0
Mr. J. H. Smith	0	10	0	Dr. Audland	0	10	0
Mr. F. E. Bilson	2	2	0	Dr. Hollis	0	10	0
Mr. F. F. Rowsell	2	2	0	Dr. F. J. Stuart	0	10	0
Mr. C. W. Holmes	1	1	0	Dr. Robb	0	10	0
Mr. J. H. Bishop	1	1	0	Dr. Hulbert	0	10	0
"Secundo Curo"	1	1	0	Dr. Vanvestraut	0	10	0
Mr. J. R. Ball	0	2	6	Dr. Wilkinson	0	10	0
Mr. J. Y. Fairweather	0	5	0	Dr. Hichens	1	1	0
Mr. H. Jenkins	1	1	0	Dr. W. F. Addey	2	2	0
Mr. J. F. Harrington	5	0	0	Dr. G. Crichton	1	0	0
Messrs. Beach and Co.	3	3	0	Woolwich Division			
Mr. F. W. Monsell	1	1	0	B.M.A. (per Dr. B. W. Lacey, Hon. Sec.):—			
Captain A. Falconer Hayden	5	5	0	Dr. S. R. Smith	1	1	0
Right Hon. J. M. Wilson, P.C., M.P.	5	0	0	Dr. G. Faris	1	1	0
Shropshire and Mid-Wales Branch, B.M.A. (per Dr. A. G. Mackenzie, Hon. Sec.):—				Dr. A. E. Thompson	1	1	0
Dr. R. de S. Stawell	2	2	0	Dr. C. M. Greenway	1	1	0
Professor E. W. White	2	2	0	Dr. F. L. Tittley	1	1	0
Dr. Willoughby Gardner	3	3	0	Dr. C. F. Clarke	1	1	0
Mr. H. H. B. MacLeod	1	1	0	Dr. F. J. C. Blackmore	1	1	0
Mr. Arthur Jackson	1	1	0	Dr. A. Mair	1	1	0
Dr. E. H. O. Sankey	1	1	0	Dr. F. R. Patterson	0	10	6
Dr. T. Orr	1	1	0	Dr. J. B. Byles	0	10	6
Dr. R. H. Urwick	1	1	0	Dr. F. L. Stephenson, C.B.	0	10	0
Mr. Russ Wood	1	1	0	Dr. L. A. Barrow	1	1	0
Dr. A. B. Blaikie	2	2	0	Dr. J. Clarke	1	1	0
Dr. S. W. Thompson	2	2	0	Dr. C. M. Smith	1	1	0
Mr. F. Whineup	1	1	0	Dr. H. M. Wise	1	1	0
Dr. John Murray	0	10	6	Dr. B. W. Lacey	1	1	0
Dr. F. H. Pearce	1	1	0	Mr. E. Quant	1	1	0
Dr. Walter Hall	0	10	6	Medical Insurance Agency	26	5	0
Dr. T. M. Cuthbert	0	10	0	Dr. G. Basil Price	1	1	0
Dr. R. G. C. Thornton	1	1	0	Dr. J. T. Rogerson	1	1	0
Dr. J. Wheatley	2	2	0	Dr. J. P. Lusk	1	1	0
Dr. Leonard J. Godson	1	1	0	Sir Francis H. Champneys	10	0	0
Mr. J. McClintock	2	2	0	Dr. Duigan	1	1	0
Dr. A. G. Mackenzie	1	1	0	Surgeon-Captain G. Sherman Bigg	1	0	0
Dr. Albert E. Nicholls	2	2	0	Mr. Charles J. Heath	3	3	0
Mr. G. D. Collins	0	10	6	Dr. Charles Gibson	1	1	0
Dr. W. Stanley Hughes	1	1	0	Dr. Samuel Davidson	1	1	0
Dr. Cecil E. Salt	1	1	0	Staff-Surgeon Douglas D. Turner	1	1	0
Dr. A. Dean Roberts	1	1	0	Medical Staff, R.N. Hospital, Dunskaith	1	1	0
Dr. H. C. Woodhouse	1	1	0	Mr. F. Slater	1	1	0
Dr. J. Peplow Cartwright	1	1	0	Dr. C. H. Vrooman	5	0	0
Northampton Division, B.M.A. (per Dr. P. S. Hichens, Hon. Sec.):—				Dr. J. T. Calcott	5	0	0
Dr. P. White	1	0	0	"Sincere Sympathiser"	1	1	0
Drs. Turner and Stevenson	0	10	0	West Herts Division, B.M.A. (second donation) (per Dr. K. J. Aveling, Hon. Sec.):—			
Dr. Linnell	0	10	0	Dr. George Arthur	2	2	0
Dr. Byass	0	10	6	Dr. John McGregor	2	2	0
Mr. M. B. Odgers	0	10	0	Dr. Walter Dodd	1	1	0
Mr. J. H. Perceval	0	10	0	Dr. Howard S. Wilson	1	1	0
				Dr. J. Sutcliffe	1	1	0

	£	s.	d.
Dr. J. Troup	1	1	0
British Medical Association	105	0	0
Lieutenant B. H. Wedd, R.A.M.C.	10	0	0
Dr. C. W. Buckley	1	1	0
Miss M. H. Fraser	1	1	0
Mr. A. J. Couzens	5	0	0
Dr. Soden	2	2	0
Dr. A. W. Tuxford	1	1	0
Dr. H. H. I. Hitchon	2	2	0
Surgeon-General Sir Charles Cuffe, K.C.B.	2	2	0
Canterbury and Faversham Division, B.M.A. (per Mr. Neil Robson, Hon. Sec.)—			
Dr. A. B. R. Sworn	1	1	0
Dr. R. A. Bremner	1	1	0
Dr. R. G. Wills	1	1	0
Dr. Brian Rigden	1	1	0
Dr. Z. Prentice	1	1	0
Dr. F. Wachter	1	1	0
Dr. S. Wachter	1	1	0
Dr. H. Wachter	1	1	0
Dr. H. O. Preston	1	1	0
Dr. C. U. Ind	1	1	0
Dr. F. Noble	1	1	0
Dr. N. Robson	1	1	0
Dr. Norman-Robinson	1	1	0

	£	s.	d.
Dr. L. A. Winter	1	1	0
Dr. Hope Grant	1	1	0
Dr. Margaret Todd	1	1	0
Dr. Robert W. Nairn	2	2	0
Major C. E. Pollock, R.A.M.C.	1	0	0
West Somerset Division B.M.A. (per Mr. W. B. Winckworth)—			
Dr. J. A. Macdonald	10	10	0
Dr. E. Liddon	5	0	0
Dr. R. L. Mead-King	5	0	0
Mr. W. B. Winckworth	5	0	0
Dr. Annie E. Clark	2	2	0
Dr. C. L. Tripp	2	2	0
Mr. W. H. Mallow	1	10	0
Dr. H. T. S. Aveline	1	1	0
Dr. J. Codner	1	1	0
Dr. H. Downes	1	1	0
Mr. G. W. Edlington	1	1	0
Dr. A. R. Graham	1	1	0
Mr. H. W. Husbands	1	1	0
Mr. A. R. Iles	1	1	0
Dr. F. C. Joseelyne	1	1	0
Dr. C. G. MacVicker	1	1	0
Mr. W. H. Randolph	1	1	0
Dr. C. B. Stewart	1	1	0
Mr. R. H. Vereker	1	1	0
Mr. A. D. Willcocks	1	1	0
Dr. N. Burns	0	10	6

Territorial medical officers in the new locality when possible. (b) If the above is not feasible, the places of medical officers not desiring to accompany their units may be taken by junior medical officers willing to take temporary commissions and serve with such units, the original medical officers being demobilised until the return of the units to their own localities, or until their services can be otherwise utilised there.

2. When a mobilised Territorial unit volunteers for Imperial service abroad the medical officer will be given the option of accompanying it or of serving with the reserve unit raised for home defence in its stead, vacancies in both units being filled up by junior medical officers with temporary commissions. To facilitate such exchanges a list is kept at the War Office of junior practitioners willing to accept general service either at home, in the field, or abroad, from which substitutes can be detailed as occasion arises. The medical officers themselves might be of assistance in procuring substitutes to take their places possibly from their own neighbourhoods, whose names would be placed on the list.

Lieutenant-Colonel A. P. Blenkinsop, writing for the Director-General of the Army Medical Service, calls particular attention to the concessions in paragraph 1 of this communication, as having been devised to mitigate as far as possible inconvenience to the civil population and to Territorial Force medical officers owing to enforced change of station.

A further communication has been received by the general officers in command from the Director-General of the Army Medical Service, which deals with a closely allied subject:—

I am directed to acquaint you that in view of the importance of allowing medical students to continue their studies in order to qualify as medical practitioners at the earliest possible date, it has been decided that any students who have joined medical units of the Territorial Force and wish to immediately resume their studies shall be released from service. I am therefore to request that you will cause a list of any such students serving in the medical units in your Command to be sent to this office as soon as possible.

It will be seen that both of these communications display the War Office as commendably alive to existing difficulties and future necessities.

THE WAR.

THE CASUALTY LIST.

The following casualties among officers of the Royal Army Medical Corps serving with the Expeditionary Force have been reported since our last issue:—

Died of wounds: Lieutenant Charles Cochrane Iles.

Wounded: Lieutenant H. F. W. Adams.

Captain Malcolm Leckie, D.S.O., who was officially reported wounded and missing, is now unofficially reported to have died of his wounds.

THE WAR AND THE DISLOCATION OF PRIVATE PRACTICE.

A communication has been addressed by the Secretary of the War Office, dated Dec. 10th, to the general officers commanding in chief of the several Army Commands, which we are now at liberty to reproduce:—

I am commanded by the Army Council to acquaint you that in order to mitigate as far as possible the inconvenience to the civil population and to Territorial Force medical officers owing to enforced changes of station, the following measures will be adopted, the object in view being that these officers may be able, as many medical officers attached to general hospitals are at present able, to give part of their time to civil practice in their own districts:—

1. When a mobilised Territorial unit is moved from its own locality in Great Britain, the medical officers may be allowed—(a) To effect exchanges, direct or indirect, with

THE CARE OF THE GERMAN WOUNDED.

It is clear that in Germany's long preparation for war the medical and ambulance organisation has not been overlooked. The German medical journals, which are delivered regularly in America, contain many descriptions of these matters, and it is curious to note how closely they parallel our own. Evidence is accumulating to show that our medical preparations were complete, and Germany can make the same claim. On our own side, however, there were complaints at first about the inadequacy of transport arrangements, but these were answered by the argument that no organisation, however perfect, could be expected to work faultlessly under the tremendous strain thrown upon it by the severe fighting of the first phase of the campaign in Northern France. Exactly the same thing has happened in Germany. Professor Czerny published certain friendly criticisms of the transport methods in the *Münchener Medizinische Wochenschrift*, whence they found their way into some of the daily papers. In the same journal, in the issue of Oct. 15th, an official reply has been printed, which deprecates criticisms of this kind, pointing out that although there were plenty of hospital trains for the German wounded these were cut off from the front by trains carrying troops and supplies. Freight trains were therefore used for the transportation of some of the wounded each being

accompanied by a medical staff. Provision has also been made for the proper equipment of such trains in case they have to be used again; for although there are at present 50 hospital trains running over a clear route, it is pointed out that this cannot be guaranteed if the number of wounded increases again. The Hamburg Red Cross Society has furnished a hospital train which it is claimed is the most efficient ever constructed. It has 36 cars, including 29 for seriously wounded men and 278 beds, a magazine car, a baggage car, a supply car, a surgeon's car, a dispensary, and a car for the hospital staff. The beds, which can be used as stretchers, have spring mattresses and an ample supply of clean linen and blankets. According to a letter to the *New York Medical Record* of Dec. 5th from a special correspondent with the German Army Medical Corps, the wounded are classified into those able to march, those who are fit for transport, and those who are not. To the last are affixed white labels, each with two removable red stripes. If one of these stripes is removed it signifies that the man is ready for transport; if both are removed, that he is fit to march. Each army corps has 12 field hospitals of 200 beds each. The surgical staff of each army corps consists of a surgeon in charge, assisted by an advisory surgeon and a sanitary expert. Beneath these are divisional, regimental staff, and battalion surgeons, with senior, assistant, and subordinate field surgeons. Each army corps also takes with it three sanitary columns. The losses have been severe; up to Oct. 20th '73 of the surgeons had been killed and a number were missing. Scarcely any but trained nurses are now being allowed to go to the front, some of the untrained volunteers having grumbled at the arduous nature of their duties. The *Deutsche Medizinische Wochenschrift* gives some examples of these complaints: one thought six hours was long enough for night duty, another did not like looking after tuberculous patients, and a third rebelled against going on duty at 7 A.M. Apparently the German army surgeons do not suffer these people gladly.

THE KING GEORGE HOSPITAL.

The names of the visiting staff of the large Red Cross Hospital with 1650 beds, known as the King George Hospital, which is being organised in the new Stationery Office buildings near Waterloo Bridge, have now been announced. Eight physicians and 24 surgeons have been appointed as follows:—

Physicians.—Sir John Broadbent, Dr. Farquhar Buzzard, Dr. James Collier, Dr. Raymond Crawford, Dr. J. A. Ormerod, Dr. Newton Pitt, Dr. F. M. Sandwith, and Dr. Lewis Smith.

Surgeons.—Mr. Joseph E. Adams, Mr. Donald Armour, Mr. Stanley Boyd, Mr. C. C. Choyce, Mr. Edred M. Corner, Mr. Herbert S. Clegg, Mr. Willmott Evans, Mr. W. H. Clayton-Greene, Sir W. Arbuthnot Lane, Mr. Lawrie McGavin, Mr. D'Arcy Power, Mr. H. Betham Robinson, Mr. James Sherren, Mr. S. Maynard Smith, Mr. Walter G. Spencer, Mr. F. J. Steward, Mr. Charters J. Symonds, Mr. Gordon Taylor, Mr. Wilfred Trotter, Mr. William Turner, Mr. J. W. Thomson Walker, Mr. H. J. Waring, and Mr. Herbert F. Waterhouse.

To the list of consulting physicians which we published on Dec. 19th, 1914, must be added the name of Dr. Samuel West. The names of the officers to take charge of the various special departments will be published shortly. Colonel J. Murray Irwin, R.A.M.C., has been appointed by the War Office as

commandant. Mr. E. W. Morris, secretary of the London Hospital, will act as honorary secretary of the hospital, Mr. Oswald Williams as secretary, and Miss Davies, of the Army Nursing Reserve, as matron.

THE CARE OF THE SOLDIER'S FEET.

The importance of keeping the soldier's feet in good condition is well known, though perhaps the means of so doing are hardly sufficiently realised. For the purpose of instructing officers in foot inspection, as well as of teaching the men themselves, a leaflet has been drawn up, which has been adopted by many commanding officers of new battalions to be given to each man on enlisting. The circular reads as follows:—

Boots should fit with comfort, neither causing pressure nor being too loose, causing friction. The leather, if hard, can be softened with dubbin or oil. Nails or seams inside the boots must be removed, and the boots should be properly laced. Socks should fit easily, not too large or too small. Dirty socks, badly darned socks, socks with holes or too thin are a frequent cause of sore feet. Feet: The feet should be washed and thoroughly dried daily, and dusted with boracic powder. It is a good plan to soak the feet in a bucket of cold water, to which may be added a little permanganate of potash, alum powder, salt, or saltpetre. When blisters occur the serum should be let out with a clean needle, sterilised by passing through the flame of a match, the superficial skin not being removed. If sores occur they are best treated by the application of boracic lint or powder, a small piece of lint being strapped over the sore and renewed daily. Corns and hard skin can be easily relieved with the new miniature corn planes, or by applying a few drops of salicylic collodion for three nights, when the corns can be picked off after bathing the feet in hot water. Any soreness between the toes can be relieved by packing in a little cotton wool.

THE BRITISH RED CROSS SOCIETY.—The summary of the work for the week ending Dec. 19th states that during the past week the following have been despatched: 21 ambulances, 4 touring cars, 1 lorry and 1 soup kitchen to Boulogne; 3 ambulances, 2 touring cars and 1 lorry to Dunkirk; and 11 ambulances elsewhere in England.

The number of auxiliary home hospitals accepted by the War Office to date is 613, containing beds for 17,294, including 344 beds accepted during the past week. Mr. R. Fox-Symons, at the request of the War Office, went to Dublin with Colonel W. H. Horrocks, R.A.M.C., to inspect the Castle with a view to its suitability as a Red Cross hospital; details of this hospital are given elsewhere.

350 cases of stores were sent to the Continent. Of these, 159 went to Boulogne and 103 to Calais. In this country 165 hospitals were supplied with 419 cases of stores. During the past week 19,583 garments were received, and 11,099 were issued.

A daily list is received from Boulogne of wounded officers there or at other places. By arrangements with the War Office every wounded man in hospital will be handed a postcard bearing the name of the hospital in order that he may notify his next of kin.

The Netley Red Cross Hospital has its full number of beds now available, and there are 208 British, 152 Indian, and 10 Belgian sick and wounded soldiers occupying cots. Many of the counties which have erected huts are generously supplying gifts both for British and Indian wounded.

The British Red Cross work in France is dealt with in a special fly-sheet, signed by Sir Frederick Treves. His notes on the various voluntary hospitals established in the North of France make most satisfactory reading, and concerning the incidence of enteric fever he says, when referring to the Baltic Hospital, Calais: "Enteric fever is apparently not increasing. It is reported that there are only 200 to 250 cases of typhoid among Belgian soldiers in the whole of Calais. The new cases are coming in at the rate of about 10 a day."

THE INDIAN BASE HOSPITAL AT BRIGHTON.—

The Government, having decided to make provision for 3000 wounded of the Indian Expeditionary Force at Brighton, sent down that distinguished Anglo-Indian officer, Sir Walter Lawrence, to make the necessary arrangements. He had no difficulty in carrying through most successfully all the details, largely owing to the patriotic spirit in which he was met by the various public bodies concerned. The Indian hospital is being placed in three blocks: the Pavilion Block, consisting of the Pavilion, Dome, and Corn Exchange; the York Place School Block; and the Poor-law Institution Block. In the former two blocks are about 500 beds each and in the Poor-law Block about 2000. The Pavilion has been practically entirely transformed into a Military Hospital; York-place School is likewise nearly complete; but a good time must elapse before the old workhouse can be converted, for there are nearly 1500 inmates for whom the guardians have to find accommodation, and this is by no means an easy task.

The staff, which is as yet not complete, is so far made up as follows. Colonel R. N. Campbell, C.B., C.I.E., has been appointed Administrator. He is a retired Indian medical officer, has seen service in the Naga Hills Expedition in 1879 and at Akha in 1883, and has been Inspector of Civil Hospitals in Assam. He has as registrar Lieutenant-Colonel W. H. Elliot, D.S.O., and as adjutant Captain A. I. Fortescue, R.A.M.C. At the Pavilion Branch Lieutenant-Colonel McLeod is in command, and is assisted by the following retired members of the Indian Medical Service: Lieutenant-Colonels O. H. Channer, J. G. Hulbert, W. S. P. Ricketts, and H. R. Woolbert; Majors M. Dick, Langston, and C. I. Williams, with Dr. Morton in charge of the X ray department. At York-place Lieutenant-Colonel Sweeny is in command, with Lieutenant-Colonel Coates as registrar. The other officers are Lieutenant-Colonels Joshua Duke, Crawford, Duer, Greaney, J. J. Pratt, and E. W. Young, and Major E. S. Peck. Lieutenant-Colonel T. D. C. Barry is acting as X ray specialist. There are also several members of the Royal Army Medical Corps attached to the hospital, and in addition to each 50 beds there are appointed an Indian native doctor and an Indian senior medical student.

The nursing arrangements are being carried out by members of the Royal Army Medical Corps and of the St. John Ambulance Association. These latter have come from all parts of the kingdom, principally the northern towns. About 40 sisters have been appointed to supervise the nursing and the management of the operating theatres, but they will take no part in the actual work of nursing. The cooking for the Indians presents a good deal more difficulty than it does in an ordinary hospital on account of the caste rules. Separate kitchens, cooks, and cooking utensils have been arranged for the Hindus, the most strict sect, and the Mussulmans. The Sikhs and the Gurkhas have joined with the former. The main diet of the men consists of curry, rice, and chupatties. The latter are cakes of unleavened bread, made from flour and water, and in cooking are tossed about by hand in a kind of pancake fashion on specially prepared ovens.

The baths for the men are all shower baths, both hot and cold. The Indian does not like the ordinary immersion bath of the Englishman. The water-closets, too, are quite different to those of the English hospital. They consist of stand-up latrines, with two places for the feet and a hole over which the Indian stoops and defæcates. The strict privacy of the Briton is not observed, the native performing his toilet operations in semi-publicity.

The Pavilion Hospital is nearly complete and is already occupied by wounded men. The cases admitted so far have not been of the most serious nature, for the men had been waiting on ships at Southampton for something like three weeks till the Brighton Hospital was ready for them, and therefore many had well advanced on the way to recovery. In the large circular Dome building there are rather more than 100 beds, in the rectangular Corn Exchange about the same number, the rest of the 500 being distributed in the various rooms, large and small, of the Pavilion itself. Of these, the spacious music and banqueting rooms form the chief wards. The hospital has its own two theatres, its X ray department, dispensary, stores-room, &c., and is complete in itself. The York Place Hospital, so patriotically placed at the disposal of the authorities by the Brighton Education

Committee, is practically complete, and hardly recognisable as a former school building. It also is occupied by the injured from the front. The school class-rooms have been converted into wards, the gymnasium making a fine show with its 60 beds. Here, too, are the operating theatres, a fully equipped X ray department, and all the necessary accessories, such as a dispensary, medical officers' rooms, administrative rooms, and stores. The Brighton guardians, who have with commendable patriotism given up their great building, the Poor-law institution, have not yet been able to place out all their numerous inmates, but those responsible are rapidly making the necessary arrangements, and the administrator will shortly be able to start the process of converting the building into a great military hospital.

The language difficulty is not so formidable as it might seem at first sight. The officers of the Indian Medical Service speak the various dialects, there are a good many native doctors and students employed, and some of the Indians speak a little English. Notices in Nagri and Urdu are posted up about the building, so that, taking all things into consideration, this apparent difficulty has been quite well overcome.

The town of Brighton has, in addition to this 3000 beds for the Indians, had established in its midst the Second Eastern General Hospital, under the charge of Lieutenant-Colonel Rooth, with about 1000 beds, and also a Red Cross hospital, and branches of the base hospital at some of the permanent institutions of the town, such as the Royal Sussex County Hospital, the Sussex Eye Hospital, the dispensary, &c., making a total of not much short of 5000 beds. The public spirit of the borough and its inhabitants is to be admired.

DUBLIN CASTLE HOSPITAL.—Our Dublin Correspondent writes: "After many difficulties, some real and some manufactured out of personal or political virus, the scheme for the establishment of a Red Cross Hospital in Dublin Castle appears now to be in a fair way to success. Some weeks ago inspectors sent by the War Office and the British Red Cross Society visited the Castle and made several valuable suggestions to the local executive. Following on their visit the War Office gave its formal approval, limiting the number of beds to 250, however, in place of 450 originally proposed. The medical staff has been appointed in a manner which skilfully avoided all possibility of cavil or jealousy. Each of the clinical hospitals in Dublin, of which there are ten, was invited to nominate one surgeon and one physician. The hospital staffs cordially accepted the invitation, and the staff is now complete. These gentlemen are giving their services gratuitously, and each surgeon is to introduce an assistant, who will also give his services gratuitously. Anæsthetists, X ray officers, and resident surgeons will be paid. When the Castle Hospital is complete the accommodation therein provided, together with that available in the general hospitals, will be sufficient for about 700 soldiers—the complement of a hospital ship."

HOSPITAL TRAINS FOR THE FRONT.—The milling trade of the United Kingdom is making a generous gift to the British Red Cross Society for the purpose of providing two hospital trains for the transport of British wounded in France and Belgium. Two of these trains have been ordered at an estimated cost of £22,000, and they will be known as the United Kingdom Flour Millers' Hospital Trains. The total carrying capacity of each train will be 358 wounded (108 lying-down cases and 250 standing-up cases) with a staff and personnel of 51.—Through the generosity of the Egyptian Red Crescent Society a hospital train has been placed at the disposal of the military authorities in Egypt.

SOUTH AFRICAN AMBULANCE FOR FRANCE.—The services of the South African Field Ambulance Unit, which has been organised and equipped by the Anglo-French Branch of the British Red Cross Society of South Africa out of funds subscribed in that country, have been gratefully accepted by the French Government, which has placed at the disposal of the unit a hospital on the Riviera. A South African Committee is being formed in London for the support of this undertaking. The staff of the ambulance will comprise four surgeons, four dressers, a matron, and ten nursing sisters, four motor ambulances with drivers, and a

complete hospital equipment. The officer in charge of the unit is Dr. J. A. Casalis, President of the Société Française de Cape Town.

THE "MALLOCK-ARMSTRONG EAR DEFENDERS."

—The many correspondents who have inquired where these appliances, described in this column last week, can be obtained are referred to a letter from Mr. H. N. G. Cobbe in this week's issue.

VACANCIES FOR MEDICAL OFFICERS.—Captain

H. S. Fremlin, 1st London (County of London) Sanitary Company, R.A.M.C. (T.F.), asks us to state that medical men with sanitary qualifications are needed as officers in this company. Applications should be made to the Officer Commanding 1st London Sanitary Company, Duke of York's Headquarters, Chelsea, S.W.

LIVERPOOL MERCHANTS' MOBILE HOSPITAL.—

Funds have been subscribed by the merchants of Liverpool for the provision of a military hospital for service at the Front in serious cases requiring prompt treatment. The committee of management has approved of a contract for building and erecting a hospital abroad at a cost of nearly £13,000. Although much more than this has been subscribed already, the equipment of the hospital will cost a considerable sum, and additional monthly donations for maintenance are needed. The committee have appointed Mr. T. C. Litler Jones senior surgeon, Dr. Nathan Raw senior physician, and Miss Whitson matron, with a nursing staff of 40. The hospital is expected to be ready to sail, if required, at the end of February. The essential idea of the scheme is to provide a hospital which can be quickly erected, taken to pieces, packed, removed, and re-erected upon a fresh site within 24 hours or so. It will consist of eight pavilion wards, each taking 26 patients, with the necessary staff accommodation and offices, with a central operation block and kitchen block, and nurses' and orderlies' quarters, laundry, bath, and isolation blocks, and pathological laboratory. All the building will be constructed of wood in portable sections and linked together by covered ways. The area occupied by the buildings will be nearly one acre, with a minimum site requirement of four acres.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees, Michaelmas term, 1914, the following candidates were successful:—

FIRST EXAMINATION—October, 1914.

Part I., Chemistry.—J. C. Ainsworth Davis, Christ's; H. Barbash, St. John's; R. H. O. Betham Robinson, King's; A. M. Broad, Caius; E. J. Crisp, Sidney Sussex; E. O. Curwen, Caius; H. V. Edwards, Trinity; A. C. Halliwell and A. T. Hawley, Caius; M. S. Thomson, Downing; J. S. Williams, Caius; R. L. Williams, St. John's; and D. W. Winnicott, Jesus.

Part II., Physics.—J. C. Ainsworth Davis, Christ's; H. S. Allen, King's; H. Barbash, St. John's; R. H. O. Betham Robinson, King's; A. M. Broad, Caius; E. J. Crisp, Sidney Sussex; E. O. Curwen, Caius; H. V. Edwards, Trinity; A. C. Halliwell, A. T. Hawley, and H. J. H. Hendley, Caius; R. Hilton, Corpus Christi; K. P. Lloyd-Williams, Clare; A. S. Redfern, Trinity; M. S. Thomson, Downing; and R. L. Williams, St. John's.

Part III., Elementary Biology.—R. H. O. Betham Robinson, King's; A. M. Broad, Caius; H. V. Edwards, Trinity; M. S. Thomson, Downing; J. S. Williams, Caius; and R. H. White, King's.

FIRST EXAMINATION—December, 1914.

Part I., Chemistry.—H. S. Allen, King's; W. B. Arnold and W. E. H. Banks, Clare; M. G. Begg, Caius; W. Breakell, Sidney Sussex; H. B. Bullen, B.A., Clare; C. Dunscombe, Downing; L. P. Garrod, King's; H. J. H. Hendley, Caius; G. W. Karunaratna, Clare; S. Orchard, Caius; P. Richardson, Christ's; R. E. R. Sanderson, Caius; F. G. Spear, Christ's; and R. C. Thorp, Caius.

Part II., Physics.—W. B. Arnold and W. E. H. Banks, Clare; M. G. Begg, Caius; H. B. Bullen, B.A., Clare; C. Dunscombe, Downing; M. W. H. Evans, Caius; L. P. Garrod, King's; S. Orchard and J. L. Potts, Caius; P. Richardson, Christ's; R. E. R. Sanderson, Caius; F. G. Spear, Christ's; J. S. Williams, Caius; and D. W. Winnicott, Jesus.

Part III., Elementary Biology.—J. C. Ainsworth Davis, Christ's; H. Barbash, St. John's; H. B. Bullen, B.A., Clare; R. Hilton, Corpus Christi; S. Orchard and R. E. R. Sanderson, Caius; R. L. Williams, St. John's; and D. W. Winnicott, Jesus.

SECOND EXAMINATION—October, 1914.

Part I., Pharmacology and General Pathology.—E. H. R. Altounyan, Emmanuel; D. J. Batterham, Caius; W. H. Blackburn, B.A., Christ's; R. S. Corbett and E. H. Dendy, B.A., Caius; J. M. Downie, B.A., Christ's; J. R. Earp, St. John's; J. S. Ellis,

B.A., H. W. Featherstone, B.A., and L. P. L. Firman-Edwards, Trinity; H. Gardiner-Hill, B.A., Pembroke; E. A. Gibb, B.A., Emmanuel; C. C. Goodall, Caius; E. A. Green, B.A., Emmanuel; F. H. S. Greenish, B.A., and J. Hale, B.A., Caius; F. E. Higgins, B.A., and G. M. Kendall, B.A., St. John's; C. C. Kerby, B.A., and E. A. Leak, Trinity; W. J. MacCombie, B.A., Caius; G. L. Maule, B.A., Christ's; T. D. Morgan, B.A., Jesus; D. M. Muir, B.A., Trinity; E. S. Orme, Queens'; P. E. D. Pank, B.A., and D. W. R. Richardson, Caius; J. Rickman, B.A., King's; G. B. Sellwood, B.A., Emmanuel; W. J. D. Smyth, B.A., Pembroke; N. S. Tirard, Trinity; F. H. Vey, B.A., Clare; and R. C. P. Whitecombe, B.A., and H. G. E. Williams, B.A., King's.

SECOND EXAMINATION—December, 1914.

Part I.—E. V. Beale, King's; W. T. Beswick, B.A., and H. R. Bickerton, Trinity Hall; J. M. Bickerton, Pembroke; G. E. Birkett, Trinity Hall; C. N. Carter, B.A., Trinity; T. L. Crawhall, Caius; H. T. Cubbon, St. John's; W. L. Dandridge, Emmanuel; J. C. Davies, Trinity; S. R. E. Davies, Queens'; H. B. Dodwell, B.A., Emmanuel; F. N. V. Dyer, Clare; G. H. Gidlow Jackson, B.A., Trinity; H. H. Ginsburg, Downing; G. A. Harrison, Caius; L. B. Hartley, King's; L. G. Higgins, Clare; J. M. Higginson, St. John's; S. M. M. Jabir, Catharine; M. H. Jupe, Caius; J. G. Lawn, Sidney Sussex; J. B. S. Lewis, Downing; E. I. Lloyd, B.A., Trinity; A. G. F. McArthur, King's; C. J. Penny, B.A., Jesus; G. W. Pratt, B.A., St. John's; E. D. Spackman, Queens'; C. Sufferin, B.A., Emmanuel; H. J. R. Surridge, Pembroke; M. B. R. Swann and W. E. Vaudrey, Caius; H. W. C. Vines, B.A., Christ's; W. J. Walters, B.A., Clare; W. G. Wernicke, B.A., Emmanuel; and W. G. Woolrich, St. John's.

THIRD EXAMINATION—December, 1914.

Part I., Surgery and Midwifery.—W. K. Bigger, B.A., Emmanuel; P. R. Boswell, B.A., Queens'; T. J. H. Hoskin, B.A., Trinity; L. M. Ingle, B.A., King's; J. H. Jordan, B.A., Emmanuel; G. O. Maw, B.A., Pembroke; H. G. Oliver, B.A., Caius; D. V. Pickering, B.A., Emmanuel; R. T. Raine, B.A., H. Selwyn; W. H. C. Romanis, B.A., Trinity; and C. M. Hyley, and G. D. Sherwood, B.A., Emmanuel.

Part II.—F. L. Cassidi, B.A., Corpus Christi; C. L. Gimblett, B.A., Caius; N. Gray, B.A., Emmanuel; J. H. Jordan, B.A., Emmanuel; F. D. Marsh, B.A., Trinity; H. G. Oliver, B.A., Caius; A. G. Shera, B.A., and G. D. Sherwood, B.A., Emmanuel; and W. S. Soden, B.A., St. John's.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates were successful:—

Surgery.—D. Havard (Sections I. and II.), London Hospital; H. R. Ibbotson (Sections I. and II.), Leeds; J. G. Lewis (Section I.), Durham; C. H. Phillips (Sections I. and II.), London Hospital; G. Robinson (Sections I. and II.), Manchester; and W. C. S. Wood (Sections I. and II.), King's College Hospital.

Medicine.—R. N. Cozier (Sections I. and II.), Ontario and Glasgow; C. J. G. Exley (Section I.), University College Hospital; A. E. Gravelle (Sections I. and II.), King's College Hospital; D. Havard (Section II.), London Hospital; D. M. Hunt (Section II.), London and Middlesex Hospitals; and T. J. R. Scholtz (Sections I. and II.), Amsterdam.

Forensic Medicine.—L. Bennet, Royal Free Hospital and Birmingham; R. N. Cozier, Ontario and Glasgow; R. Curle, Guy's Hospital; A. E. Gravelle, King's College Hospital; R. A. Holmes, Guy's Hospital; C. H. Phillips, London Hospital; and T. J. R. Scholtz, Amsterdam.

Midwifery.—R. N. Cozier, Ontario and Glasgow; C. J. G. Exley, University College Hospital; N. Hoffmeister, Middlesex Hospital; R. A. Holmes and R. Quesada Jiménez, Guy's Hospital; and T. J. R. Scholtz, Amsterdam.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—D. Havard, H. R. Ibbotson, C. H. Phillips, G. Robinson, T. J. R. Scholtz, and W. C. S. Wood.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

M.D. EXAMINATION.

Branch I., Medicine.—Lionel Alfred Dingley, University College Hospital; Thomas Peters Edwards, St. Bartholomew's Hospital and University of Leeds; Edward Leslie Horsburgh, Victoria University of Manchester; Joseph Howell Lloyd and Jivraj Narayan Mehta (University medal), London Hospital; and John Tattersall, St. Mary's Hospital.

Branch III., Mental Diseases.—George William Blomfield James, St. Mary's Hospital; and James Cowan Woods (University medal), London Hospital.

Branch IV., Midwifery and Diseases of Women.—Florence Mary Edmonds and Alice Emilie Sanderson, London (Royal Free Hospital) School of Medicine for Women.

Branch V., State Medicine.—William Arthur Berry, St. Mary's Hospital and Royal Institute of Public Health.

SECOND EXAMINATION FOR MEDICAL DEGREES, PART I.

Organic and Applied Chemistry.—Arthur Lawrence Abel, University College; Mary Rushton Barkas, London (Royal Free Hospital) School of Medicine for Women; Maung Ba-Thin, Charles Courtney Bennett, and Cyril George Coombs, Guy's Hospital; Hedley Chave Cox, St. Bartholomew's Hospital; Douglas Alexander Dyer, King's College; Henry Ernest Karslake Eccles and Cecil Edward Bede Herington, St. Bartholomew's Hospital; Cyril Patrick Hines, King's College; Oscar Hyam Hyman, St. Thomas's Hospital; Henry Cyril Conwy Joyce, St. Bartholomew's Hospital; Margaret Hypatia Kingsford, London (Royal Free Hospital) School of Medicine for Women; Lloyd Kirwood Ledger, St. Bartholomew's Hospital; Gerald Esmond MacAlevey, St. Mary's Hospital; and Nai Synn, St. Bartholomew's Hospital.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following are the examination results of the forty-sixth session (October–December, 1914) of this school:—

W. I. Escoffery (Colonial Service) (Duncan medal), G. C. S. Perera (Colonial Service), A. E. Schokman, C. Deuntzer, E. F. Wills, J. E. Moffatt (Colonial Service), and E. B. Bate (Colonial Service).

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful:—

DIPLOMA IN DENTISTRY.

Final Examination.—Harry Morton, T. B. Place, John Smith, E. B. Warner, and J. V. Wilkinson.

Systematic Surgery and Pathology.—P. J. Kieran.

Pathology, Dental Prosthetics, and Operative Dentistry.—A. D. Bleakley.

Third Examination.—Arthur Duffy, Austin Furniss, George Furniss, H. L. Howorth, Eunice W. Hughes, W. H. D. Quinn, Jessie I. Ramsden, and N. H. Wood.

RÖNTGEN SOCIETY.—At the next general meeting, on Tuesday, Jan. 5th, at 8.15 P.M., at the Institution of Electrical Engineers, Victoria Embankment, W.C., the adjourned discussion on the Localisation of Foreign Bodies by X Rays will be continued by Mr. E. S. Worrall, Dr. N. S. Finzi, Dr. R. W. A. Salmond, Mr. W. L. Schall, and Mr. Burnside. The February meeting will be held at the Middlesex Hospital, when Dr. Sidney Russ will read a paper on Measurements of the Radiations from the Coolidge and other X Ray Tubes in Clinical Practice.

RESIGNATION OF LORD ABERDEEN.—Several insurance committees and other bodies concerned in public health work in Ireland have passed resolutions expressing regret at the impending departure of Lord Aberdeen. Both His Excellency and Lady Aberdeen have taken an intense interest in all matters concerning the health of the country, and the popular campaign against tuberculosis owes its inception and much of its success to the zeal and energy of Lady Aberdeen.

We regret to announce the death on Dec. 30th, in his eighty-seventh year, of Mr. Thomas Bryant, senior Fellow and former President of the Royal College of Surgeons of England.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, Limited, London.

The Diplomatic History of the War. Edited by M. P. Price M.A. Price 7s. 6d.

The Kaiser's War. By Austin Harrison. With an introduction by Frederic Harrison. Price 2s. 6d. net.

APPLETON, D., AND COMPANY, London.

Anæsthesia. By J. T. Gwathmey, M.D., in collaboration with Charles Baskerville, Ph.D., F.C.S. Price 25s. net.

ARNOLD, EDWARD, London.

Medical Nursing. By A. S. Woodwark, M.D., B.S. Lond., M.R.C.P. Lond., Lecturer on Medical Nursing at the Royal Waterloo Hospital. Price 4s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, London.

A Manual of Diseases of the Eye. By C. H. May, M.D. New York, and Claud Worth, F.R.C.S. Eng. Fourth edition. Price 10s. 6d. net.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.

The Whole Art of Bandaging. By Thekla Bowser, Fellow of the Institute of Journalists. With introduction by James Cantlie, M.A., M.B., F.R.C.S. Price 1s. net.

CAMBRIDGE UNIVERSITY PRESS, Cambridge.

The House Fly *Musca Domestica* Linn: Its Structure, Habits, Development, Relation to Disease, and Control. By C. Gordon Hewitt, D.Sc., F.R.S.C., Dominion Entomologist of Canada. Price 15s. net.

CASAFIAL, G., TIPOGRAFIA DE, Coso, 96 y 98, Zaragoza.

Artrocaces (Artritis Tuberculosas) [por el Dr. D. Ricardo Lozano Monzón. Price 15 ptas.

CONSTABLE AND CO., London.

The Acute Abdomen. By William Henry Battle, Senior Surgeon to St. Thomas's Hospital. Second edition, enlarged and illustrated. Price 10s. 6d. net.

FORSTER, GROOM, AND CO., LIMITED, 15, Charing Cross, S.W.

Field Ambulance Notes. By Captain M. F. Grant, R.A.M.C. Price 2s.

PROWSE, HENRY, AND HODDER AND STOUGHTON, London.

A Text-book for Midwives. By J. S. Fairbairn, M.A., M.B. B.Ch. Oxon., F.R.C.P. Lond., F.R.C.S. Eng., Obstetric Physician, St. Thomas's Hospital. 3 plates and 104 illustrations. Price 10s. 6d. net.

PIANISTENHARMONIE PRESSE, Zurich.

"Brahms Noblesse." By F. H. Clark.

SAUNDERS (W. B.) COMPANY, London.

A Manual of Obstetrics. By Ed. P. Davis, A.M., M.D., Professor of Obstetrics, Jefferson Medical College, Philadelphia. 171 illustrations. Price 10s. 6d. net.

SMITH, ELDER, AND CO., London.

The New Parent's Assistant. By Stephen Paget. Price 3s. 6d. net. The Voyages of Captain Scott. Retold from "The Voyage of the 'Discovery,'" and "Scott's Last Expedition." By Charles Turley. With an introduction by Sir J. M. Barrie, Bart. Price 6s. net.

THE CLINICAL RESEARCH ASSOCIATION, Limited, Adelphi, London.

The Practitioner's Guide to Clinical Research. Alphabetically arranged in sections.

THE MACMILLAN COMPANY, New York and London.

Food Products. By Henry C. Sherman, Ph.D., Professor of Food Chemistry, Columbia University. Price 10s. net.

Feeble-Mindedness: Its Causes and Consequences. By H. H. Goddard, Ph.D., Director of the Research Laboratory of the Training School at Vineland. Price 17s. net.

Infection and Resistance. By Dr. Hans Zinsser, Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York. Price 15s. net.

UNWIN, T. FISHER, London.

From the Trenches. Louvain to the Aisne. The First Record of an Eye-witness. By Geoffrey Winthrop Young. Price 2s. net.

UPCOTT GILL AND SON, London.

Chivalry and the Wounded: the Hospitallers of St. John of Jerusalem (1014-1914). By E. M. Tenison. Price 1s.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.

Elements of Physical Chemistry. By J. Livingston R. Morgan, Ph.D., Professor of Physical Chemistry in Columbia University. Fifth edition, revised and enlarged. Price 12s. 6d. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

COOMBS, PERCIVAL CHARLES, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent of the Surrey County Asylum, Netherne, Merstham.

FIELDEN, H. A., M.D. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Shildon District of the county of Durham.

HOFFMANN, GEOFFREY, M.B., B.C. Cantab., has been appointed Medical Registrar at St. Thomas's Hospital.

MITCHNER, P. H., M.B., M.S. Lond., F.R.C.S. Eng., has been appointed Surgical Registrar at St. Thomas's Hospital.

MURRAY, SYDNEY E., M.B., B.S. Durh., L.M.S.S.A. Lond., has been appointed Assistant School Medical Officer for the County Borough of Sunderland.

ROUQUETTE, STEWART, M.B., M.C. Cantab., F.R.C.S. Eng., has been appointed Resident Assistant Surgeon at St. Thomas's Hospital.

SKILLEN, HUGH A., M.B., B.Ch. Belf., has been appointed Dispensary Medical Officer for Urban No. 1 District, Belfast.

SPENCER, G. W., M.B., B.C. Cantab., has been appointed Ophthalmic Registrar at St. Thomas's Hospital.

STEELE, T., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Hamilton District of the county of Lanarkshire.

WYATT, J. M., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Obstetric Registrar at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Senior and Junior House Surgeons. Salaries £110 and £100 per annum respectively, with residence and board, &c.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.

BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Second Assistant Medical Officer. Salary at rate of £210 per annum. Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £160 per annum.

SEELY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. All with apartments, rations, laundry, and attendance.

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon and Third House Surgeon. Salary £120 and £110 per annum respectively, with apartments, board, and attendance.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN.—House Surgeon. Salary at rate of £100 per annum, with board, lodging, and washing.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BURY AND DISTRICT JOINT HOSPITAL BOARD.—Assistant to Medical Superintendent. Salary £200 per annum, with board, washing, and lodging.

CANCER HOSPITAL, Fulham-road, S.W.—Surgical Registrar. Salary £100 per annum.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salary £100 and £90 per annum respectively, with board, lodging, and washing.

CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—Two House Surgeons for six months. Salary at rate of £140 per annum each, with board, residence, and laundry. Also Female House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £140 per annum, with board, laundry, and residence.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon. Salary £150 per annum, with board, apartments, and laundry.

CHICHESTER, WEST SUSSEX COUNTY MENTAL HOSPITAL.—Second Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, and attendance.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Salary £130 per annum.

EDMONTON EDUCATION COMMITTEE, URBAN DISTRICT COUNCIL, Middlesex.—Temporary Assistant School Medical Officer and Certifying Officer. Salary at rate of £300 per annum.

FIFE DISTRICT ASYLUM, Cupar.—Senior Assistant Medical Officer and Assistant Medical Officer. Salary £200 and £160 per annum respectively, with rooms, board, and attendance.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

HULL CITY ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female Resident House Surgeon. Salary £60 per annum, with board and laundry. Also Female Resident Assistant House Surgeon. Salary £50 per annum, with board and laundry.

KENT COUNTY COUNCIL.—Tuberculosis Officer. Salary at rate of £500 per annum.

LEEDS GENERAL INFIRMARY.—Ophthalmic House Surgeon for six months. Salary £50 per annum, with board, residence, and laundry.

LERWICK PARISH COUNCIL AND SHETLAND COMBINATION POORHOUSE COMMITTEE.—Medical Officer. Salary £78 per annum.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £60 per annum each, with board, residence, and laundry.

LIVERPOOL STANLEY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing. Also Locum Tenens, unmarried. Salary £6 6s. per week.

MANCHESTER EDUCATION COMMITTEE.—Female Assistant School Medical Officer, unmarried. Salary £300 per annum.

MANCHESTER INSTITUTION AT CRUMPSALL.—Second Resident Assistant Medical Officer, unmarried. Salary £180 per annum, with rations, apartments, washing, and attendance.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.

MANCHESTER, VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Female Resident Medical Officer for six months. Salary at rate of £80 per annum, with rooms, board, and laundry.

METROPOLITAN ASYLUMS BOARD INFECTIOUS HOSPITALS AND SANATORIA.—Assistant Medical Officers, unmarried. Salary £250 per annum, with residential allowances.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Surgeon Laryngologist.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—District Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, washing, &c.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Resident Medical Officer. Salary at rate of £150 per annum, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SHEFFIELD CITY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SIDLAU SANATORIUM.—Resident Medical Officer. Salary £125 per annum.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum each, with board, residence, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

SUNDERLAND COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary at rate of £500 per annum.

SUNDERLAND ROYAL INFIRMARY.—Senior Resident Medical Officer and Two Junior House Surgeons. Salaries £150 and £120 per annum respectively, with board, residence, and laundry.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £125 per annum, with board, washing, and attendance.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary at rate of £200 per annum, with board, apartments, and laundry.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried. Salary 6 guineas per week, with apartments, board, attendance, and washing.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Physician. Salary at rate of £100 per annum, with board, residence, and washing.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, N.W.—House Surgeon. Salary £100 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

YORK COUNTY HOSPITAL.—House Physician and House Surgeon. Salary £150 per annum, with board, residence, and washing.

Births, Marriages, and Deaths.

BIRTHS.

EDGE.—On Dec. 25th, 1914, the wife of S. G. Edge, M.D., Wilnecote, Warwickshire, of a son.

EVANS.—On Dec. 22nd, 1914, at Princes-avenue, Hull, the wife of H. L. Evans, M.R.C.S., of a son.

PHILLIPS.—On Dec. 26th, 1914, at Clinton-road, Redruth, Cornwall, the wife of Lionel L. Phillips, M.R.C.S., of a daughter.

MARRIAGES.

ATLEE—HAMLEY.—On Dec. 23rd, 1914, at St. Stephen's Church, Hampstead, Charles Nelson Atlee, M.R.C.S., L.R.C.P., D.P.H., to Dorothy, youngest daughter of Frank Hamley, of Hampstead Hill-gardens, N.W.

VENABLES—COX.—On Dec. 23rd, 1914, at St. Augustine's, Grove Park, S.E., John Frederick Venables, M.B., B.Ch. Oxon., to Helen Creswicke, youngest daughter of Mrs. Cox, of Holford, Bridgwater.

DEATHS.

BEVAN.—On Dec. 12th, 1914, died of wounds received while serving in the ranks of the London Rifle Brigade in Flanders, Richard Vincent Bevan, dearly loved son of Richard Bevan, L.R.C.P. Lond., &c., Huxley Scholar, Charing Cross Medical School, aged 21 years.

LEACHMAN.—On Dec. 24th, 1914, at Fairley, Petersfield, Albert Warren Leachman, M.D., aged 76 years.

MACNALT.—On Dec. 26th, 1914, at Dublin, Francis Charles MacNalty, M.A., M.D., M.Ch. Dub., aged 68 years.

SIMON.—On Dec. 22nd, 1914, at Peshurst, Edgbaston, Sir Robert M. Simon, M.D., F.R.C.P., of heart failure, following influenza, aged 64 years.

SIMPSON.—On Dec. 22nd, 1914, at Upper Montagu-street, W., John Pollock Simpson, M.D.

STOKER.—On Dec. 24th, 1914, at Hertford-street, Mayfair, W., Ernest Wilson Stoker, M.D., F.R.C.S.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL NOTES IN HISTORICAL MANUSCRIPTS.

THE following excerpts concerning medical and quasi-medical matters are taken from the valuable and extensive collections of State and family documents, now the property of the Duke of Portland, which are preserved at Welbeck Abbey, and which have been reported upon from time to time by the Historical Manuscripts Commission. The passages quoted throw interesting side-lights on the past, are sometimes amusing, and may in some instances be considered instructive.

Richard Andrews to the Countess of Newcastle, at Welbeck, London, May 10th, 1633.—"I understand your ladyship is with child, and that therefore you desire to be furnished with such help in physics as shall be fit, and such as you have had heretofore. I have therefore sent down to you a powder to hasten the birth and make it more easy. It is made of cassia, saffron, and borax. When you are in travail I would have you take of the powder as much as will lie upon a groat in a spoonful of burnt white wine or bezoar water, or spirit of saffron. If you should be long in labour and grow faint, there is an excellent cinnamon water to take a small spoonful of to refresh your spirits. But there is a water in a little glass, called Adrian Gilbert's water, which is commended above all others in childbirth. There are other comfortable waters and spirits sent down in a little 'seller,' of which you may make use now or at any time. There is a glass of *confectio alchermes* to take a little of when you are fainting, and in the evening you may take the quantity of a dry bean, either alone or mingled with cordial water, and four or five grains of bezoar stone. I have also sent you an eagle stone which in time of labour being tied about the thigh will make the labour easier."

Matthew Boucherett to the Earl of Newcastle, Welbeck, April 23rd, 1637.—"To enter into a discourse of the mineral waters lately found in Derbyshire, in Kedleston Park, though I could wish it had fallen into the hands of a more skilful inquisitor of nature, yet since your lordship commanded it from me I will deliver my opinion briefly. That I may treat of them in order, it is necessary to find out from what mineral they borrow their quality. That which we first meet with is their strong smell, which shows the waters pass through a matrix where bitumen or a kind of clammy clay, like pitch, being of the nature of brimstone, is generated. If anyone had rather determine that they pass through sulphurous veins, I am not he that will absolutely contradict him, yet I must tell him the country people affirm that silver being cast into that water, taken from the spring head, was presently died of a gold colour, and I cannot conceive how that should come from sulphur, but rather from the aforesaid bitumen joined with nitre or some other fossil salt, whose tenuity doth dye the silver of a gold colour. Moreover, that country is so replenished with mines of coal, which are nothing else but bitumen petrified, that I may believe these waters pass through veins where coals are yet in their first principles, I mean before they be grown to a hardness, and from thence these waters borrow their quality. Besides some of these waters being distilled do show the same, for nothing whatsoever remains in the bottom of the lymbeck, but a little portion of salt with a certain black substance which clearly shows the smell, colour, and savour of bitumen. I cannot find any reason that they pass through veins of iron or vitriol. The taste denotes no such thing. I have mixed gall with them which is accustomed to turn such waters to ink, but this hath not changed the colour of these. Out of these things it may be lawful to declare those waters to be bituminous and a little nitrous. From hence it is evident they are of a hot temperament and abound with their spirits. Now, if it be safe to drink these waters they are good against ulcers in the neck of the bladder. If they be actually hot, they are good against all old pains in the joints arising from moist and cold causes, being used in manner of a bath. As they are, they are good to exsiccate all external ulcers."

Viscount Conway to his Nephew (Colonel Edward Harley).—"1651, October 14.—I am glad you are recovering of your sickness. I know one who cures the bloody flux with the powder of ginger, and holds it very secret."

The Same to the Same.—"1651, October 21.—Colonel Grantham gave me some of the powder to stay a flux; he would not tell what it was, but I found out. He says it is also good for consumption."

The Same to the Same.—"1651, Nov. 25.—I am glad you are recovered. Let me know how you found the ginger operated with you, or whether you used other remedies. I see you have been talking with your physician about water and that you think that in the much boiling the thinnest and finest parts of the water go away and leave only the most gross, unwholesome, and earthy parts There are not in the world greater fooles than philosophers nor greater knaves than physicians, unlesse it be the priests of this age, who are both."

Colonel E. Harley to his Father, Sir Robert Harley.—"1653, June 11, Westminster.—I am much troubled that riding lately has so ill agreed with you. I have spoken about your condition to Dr. Bathurst. He will send you larger directions, but at present he desires you to forbear strong diuretics, and that you would endeavour not to drink after you are in bed. He saith nothing is more hurtful for you in regard of your paralytic inclination. He prescribes turpentine pills as very good, as well against the palsy as against the infirmity of your bladder. If it please you to command my sister to make it, I have great hopes the lime drink might be very helpful to you."

Viscount Conway to Colonel E. Harley.—"1653, June 21, Petworth.—If your father suspect stone in the bladder he would do well to be searched, which may be easily done and without danger. He would also do well to take heed of violent medicines and of such as are given to break the stone, for they bring down violently gravel and cause very ill accidents and often death."

Samuel Wildey to the King.—"1660, October 8, Rotterdam.—The general report being here that his Highness the Duke of York is by God's Almighty hand visited with the small pox, I most humbly pray your Majesty that a drop of blood should not be draw from the veins of his Royall Highness, been very dangerous in his condition and firstly cause the death. The long experience that I have in that sorte of sickness make me so bold to sent my advice to your Majesty."

The Same to the Same.—(No date).—"Remedy for the small pox: Take new laid eggs, three yolkes and whites, fry them in fresh butter that was never salted, twelve onces, till the eggs be very hard. Then pour the butter from the eggs into a basson full of fayre cold water. Let it stand till the butter be cold and caked, then take it of from the water and put it into a fayre vessell and beat it with a wooded spatter, continually adding three or four drops of damaske rose water, till the butter with beating come to be white. Then take of that unguent four onces, add to it *saccarum sugar-candy*, *albi* two drams, finely pulverizated misse, *fyat electuarium*. Be sure to give of this three times a day and so in the night the quantity of a nutmegg upon a knife point. Let it dissolve in his mouth and swallow it down—this by God's grace and assistance will cure the small pox in the throat which is the cause of most men's death in that disease. Then take the unguent without the candy and warme it in a saucer and anoynt the face and eyes with a feather morning and evening, and this preserves the eyes and keeps the face from pitting. ... *Probatum est*. Now if it please God that his Royall Highness the Duc of York cannot sleep, lett a live pidgeon be slitt in two, and one halfe be applyed so soone as it is splitt to the sole of one foot and the other halfe to the sole of the other foot, fast bound with rowlers and so remaine twenty-four houres, and by God help that will procure sleep and extract the venomous quality of the disease from the heart and vitall spirits."

Doctor S. Johnson to Sir Robert Harley.—"1664, Aug. 22.—I am heartily glad to hear of your cheerfulness and increase of strength, but must earnestly desire you not to be too adventurous. I would also know whether you have had the opinion of the physicians concerning wine diluted, which truly I think may be convenient, and if so I shall make a choice of some for your use. I desire allsoe that you may have a tame fox to be kept near the house, especially if you can endure the smell, but however it cannot but bee verie beneficiall."

Sir E. Harley to Lady Harley.—"1670, March 7.—I am sorry Robin has caught an ague. I think it is not good to tamper too much with him."

The Same to the Same.—"1670, March 11.—Dr. Sydenham would not have you give Robin any physic in his fits but posset drink with sage and the like. I think centaury boiled is good and so is horse dung posset."

Margaret Lady Fitz-James to her Sister, Lady Harley.—"1673, Aug. 1, Fairfield.—My sister is now in ease and as cheerful as it can be expected. The wound in her breast is narrower than it was but very deep, to the very bone. The doctor fears it is incurable. She has been for four days before I came in extreme pain which was caused by

Sir John Wroth's tricks, exciting his horse into a fury, ... The doctor says my sister may live some years, but if the humor should come to be sharpe, as it was once before, I fear her time will not be long. The doctor speaks of ten years."

Ann Palmer to her Sister, Lady Harley.—"1673, Aug. 2.—I have a great deall to say if I were with you but can't in a letter. My breast is broke as I beleve you have heard, and it eats away more and more, soe as the doctor tells me plainly that there is noe cure but by manuall operation, and that is soe dangerous and painfull as I thinck not to submit to it, for he saith the cancer is fixt, and, as he thinckes, the rib is fouled. Though it was the first as I heard speak of it yet to mee it was not strainge, because I thought it was soe afore. There are waters in this country which have cured a cancer in a woman's breast but it is not like mine; but being now in a desperate condition I am willing to try it as it is approved by the doctor to allay pain and keep the melancholy humor low. I was for a fortnight in great pain but now I am at ease."

Sir E. Harley to Dr. Ridgley.—Brampton, 1682, December 12.—A letter consulting him concerning pains in the head and "vertiginious fitts," from which he has been suffering since his fortieth year, and mentioning that he has always found the use of senna, rhubarb, tartar, pearl, crabs' eyes, and coral agreeable.

(To be continued.)

ILLEGIBLE PRESCRIPTIONS.

OUR contemporary the *Chemist and Druggist* in its issue of Dec. 26th, 1914, reproduces the most atrociously illegible prescription we have ever seen, and invites us to express our opinion upon it.



The pharmacist to whom the original was handed is said to have dispensed it as:—

Mist. mag. ̄ mag. sulph. 5i.
Aq. ad 5vi.
5i t.d.s.

But unless the dispenser and the prescriber had a private understanding and a private code—which is possible in some panel practices—there is only one thing to be said about such a scrawl, and that is that the medical man who wrote it ought to be ashamed of himself.

PAINFUL HEELS.

To the Editor of THE LANCET.

SIR,—May I answer your correspondent on p. 976 of THE LANCET of Oct. 17th, 1914? Pain in one heel is often due to the presence of so-called calcaneum spur, which could be easily detected by an X ray photograph. I have seen several cases of this curious anomaly myself. Operative treatment is necessary. Some years ago there appeared an excellent article on it in *La Presse Médicale*.

I am, Sir, yours faithfully,
Santiago, Chili, Nov. 20th, 1914. H. BOSHOUEWERS.

* In THE LANCET of July 24th, 1909, p. 223, we published a case of "Painful Heels" in a patient aged 60, by Dr. E. Reginald Morton, of London. This was accompanied by two skiagrams of the right and left feet, distinctly showing the thorn-like processes or spurs.—ED. L.

"THE CRAIGLEITH HOSPITAL CHRONICLE."

THE Territorial military hospital of the city of Edinburgh is situated at Craigleith, and is officially known as the Second Scottish General Hospital R.A.M.C. (T.).¹ We have received a copy of the first issue (dated December, 1914) of the *Craigleith Hospital Chronicle*, which is intended to provide month by month a record of matters interesting to all those who are directly or indirectly connected with this large and important organisation. The opening Christmas number forms cheerful and intimate reading for staff, friends, and patients alike, and it is embellished with a charming photogravure of Raeburn's full-length portrait of "The Macnab" in the form of a presentation plate. The colonel commanding the hospital, Lieutenant-Colonel Sir Joseph Fayrer, in his Foreword pays a tribute to the loyalty and devotion of all serving under

¹ THE LANCET, Sept. 19th, 1914, p. 773.

him, whom he characterises as "a huge happy family." All profits from the sale of this family chronicle will be devoted to supplying extra comforts and luxuries for the wounded, and we wish it every success in its twofold mission.

THE QUEEN'S "WORK FOR WOMEN" FUND.

Mrs. C. Arthur Pearson, the honorary treasurer, and Lady Roxburgh, the honorary secretary, of the Queen's "Work for Women" Fund, announce that their special Christmas-time appeal for shillings to provide women with work has produced the splendid total of 167,446 shillings, equivalent to £8372 6s. Mrs. Pearson and Lady Roxburgh desire to thank all those who have so generously responded to the appeal. The total realised is exceedingly gratifying, not only as evidence of the confidence of the public in the practical nature of the measures of help which are being carried out, but also as a guarantee of the popularity and prosperity of the Fund in the future.

"SPIRITS FROM THE VASTY DEEP."

A WELL-KNOWN London physician has sent to us for publication a letter which he received a little time ago from a Mr. J. F. Gems, writing from 4, Lower Seymour-street, Portman-square, W., and describing himself as a member of the Finance Committee of the British Hospital for Mental Disorders. We quote the following extracts from this curious document:—

"The Rev. Susannah Harris, whose wonderful psychic gifts enable our departed friends to communicate with us in the direct voice, has kindly offered her services free for the benefit of the British Hospital for Mental Disorders. There will be a sitting on Friday, the 18th inst., at 7 o'clock, at the house of Mrs. Forbes Winslow, 57, Devonshire-street, Portland-place, W. Admission fee 10s. 6d.

The sitters will be confined to less than 20, so that the conditions may be good, and are asked to attend 10 minutes before the commencement. At the sitting on Tuesday the conditions were very good, and all present, with one exception, had evidence of the identity of friends passed over. If you wish to avail yourself of Friday's opportunity I shall be glad if you will let me know as soon as possible, particularly if you should desire to bring a friend."

In a passage which we have omitted Mr. Gems states that the hostess of the previous séance had talks with her late husband, "who spoke of friends on both sides of life and gave her some valuable advice regarding a legal matter."

Our correspondent says, with a good deal of force, that the collection of money for a hospital, especially for a hospital for mental diseases, by means such as these, seems to him most improper, if not illegal. By reproducing the greater part of the letter we think we have absolved ourselves from any obligation to comment further.

Dr. H. Marens.—We wholly agree with part of our correspondent's complaint.

Dr. H. Wheeler.—The "new style" to which our correspondent objects is certainly not graceful.

Dr. T. P. Lucas.—The preparation of carica papaya deserves trial in suitable cases, but the claims made on its behalf seem far too wide.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 30th, 1914.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 24	30.112	N.E.	...	53	42	36	36	36	Cloudy
" 25	30.300	S.E.	...	50	41	32	34	35	Cloudy
" 26	30.100	S.	0.30	48	46	35	38	42	Raining
" 27	29.700	S.W.	0.39	65	51	42	45	46	Cloudy
" 28	29.200	W.	1.06	52	51	46	51	52	Overcast
" 29	29.580	W.	...	54	44	34	37	37	Cloudy
" 30	29.930	S.W.	...	54	47	35	37	38	Fine

The following magazines, journals, &c., have been received:—New Zealand Medical Journal, Pacific Medical Journal, Calcutta Medical Journal, Cleveland Medical Journal, American Journal of Roentgenology, American Journal of Tropical Diseases and Preventive Medicine, Hospital Assistant, Medical Review of Reviews, American Journal of Obstetrics, Archives of Internal Medicine, Child's Guardian, Journal of Nervous and Mental Disease, British Journal of Dermatology, Journal of Physiology, Royal London Ophthalmic Hospital Reports, Journal of Hygiene, Journal of the Scottish Meteorological Society.

Medical Diary for the ensuing Week.

SOCIETIES.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., Adjourned Discussion on the Localisation of Foreign Bodies by X Rays. Continued by Mr. E. S. Worrall, Dr. N. S. Finzi, Dr. R. W. A. Salmund, Mr. W. L. Schall, and Mr. Burnside.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Meeting.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8 P.M., Annual General Meeting. Election of Officers. President's Address. Conversation.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Robinson: Gynaecological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynaecological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3 P.M., Lecture.—Dr. A. Wylie: Diseases of the Larynx.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed exclusively "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1914 will be ready shortly. Bound in cloth, gilt lettered, price 16s., carriage extra.

Cases for binding the half year's numbers are now ready. Cloth, gilt lettered, price 2s., by post 2s. 3d.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

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Remarks

ON

A COMMUNICATION BETWEEN THE TWO VENTRICLES OF THE HEART OCCUPYING AN UNUSUAL SITUATION.

By T. WARDROP GRIFFITH, M.D. ABERD.,
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PHYSICIAN TO THE GENERAL INFIRMARY AT LEEDS.

THE usual situation where one meets with a communication between the two ventricles of the heart is that occupied in the normal condition by the pars membranacea septi. The specimen I desire to put on record is one of that small class in which the communication is between the conus arteriosus or infundibular part of the right ventricle on the one hand and the aortic vestibule on the other.

The patient, a man aged 30 years, was under the care of Sir Clifford Allbutt in the General Infirmary at Leeds, and died there in April, 1879. The clinical notes of the case cannot be traced, but the post-mortem examination was made by the late Dr. Jacob, who was then the house physician, and his notes state that the heart was enlarged and weighed 19½ oz. He also mentioned the unusual position of the aperture. When, some 12 years ago, I was making a systematic examination of the section in our museum dealing with diseases of the heart, I discovered that this specimen had not been put on record in any of the journals. I therefore got permission from Dr. Allbutt, as he then was, to show the specimen at the Anatomical Society of Great Britain and Ireland and to publish a description of it. At the meeting of the society which was held in Edinburgh in 1907 I gave an account of the specimen and discussed its meaning, giving the explanation which I now put on record.

DESCRIPTION OF SPECIMEN.

In the preparation of the specimen for display in the museum the outer part of each ventricle and auricle has been removed. One can see, however, that there must have been considerable hypertrophy of the walls of all the chambers. The remains of the mitral and tricuspid valves are normal; there is a valvular patency of the foramen ovale.

The long dimension of the abnormal aperture in the ventricular septum would, in the natural position of the heart, be almost vertical. As seen from the left side (Fig. 1) it is situated immediately below and in front of the anterior segment of the aortic valve,¹ with the middle three-fifths of which its longer dimension is co-extensive. It measures three-quarters of an inch in length by one-fifth of an inch in width. Its anterior and lower boundary is rounded and concave and is formed by the free margin of the thick fleshy infundibular part of the septum of the ventricles. The endocardium lining this margin, and for some distance below the aperture on each aspect of the septum, is thickened and opaque. On the left side especially, the membrane is particularly thick and fibrous and this thickening ends below by a singularly sharp and

abrupt edge. On the free margin of the septum there are also some vegetations indicative of recent endocarditis. The aperture is bounded above and behind by the anterior aortic segment.

As seen from the right ventricle (Fig. 2) the aperture opens into the conus or infundibular part of that cavity. Here it is bounded below and in front by the concave margin of the septum already mentioned; above and behind it is bounded by the anterior segment of the aortic valve, which, in consequence of the deficiency in the septum, is visible from the right ventricle. Not only is this segment of the aortic valve visible from the right ventricle, but it projects into that chamber forming an aneurysmal dilatation of about the size of a small hazel nut, which separates the aperture from the antero-right pulmonary segment. The portion of the valve entering into this dilatation is thinned out and is much less substantial than the rest of the segment. At the summit of the dilatation there are two apertures about a fifth and a sixth of an inch respectively in diameter. These have projecting margins fringed with recent vegetations.

There is some general thickening of the aortic valve segments; the convex aspect of the anterior segment is roughened by the presence of vegetations. The portions of the convex aspects of the postero-right and postero-left segments which overhang the aperture are also slightly coated with vegetations. The posterior segment of the pulmonary valve which bounds the aperture above and in front is much thickened and coated with vegetations on both its convex and concave aspects. It is clear that during the diastole of the ventricles there must have been a stream of blood impinging on this part of the valve through the two apertures in the aneurysmal dilatation of the aortic segment. The portion of the antero-right pulmonary flap which is left is normal.

The deficiency in the septum is separated from the pars membranacea by a distance of three-quarters of an inch on the right side and by a distance of half an inch on the left side, the septum between being altogether fleshy. The pars membranacea septi is of small extent; it does not reach so far forward as is usual, and, as is indicated in the sketch (Fig. 1), it falls short of the junction of the anterior and postero-right segments of the aortic valve.

NATURE OF THE ANOMALY.

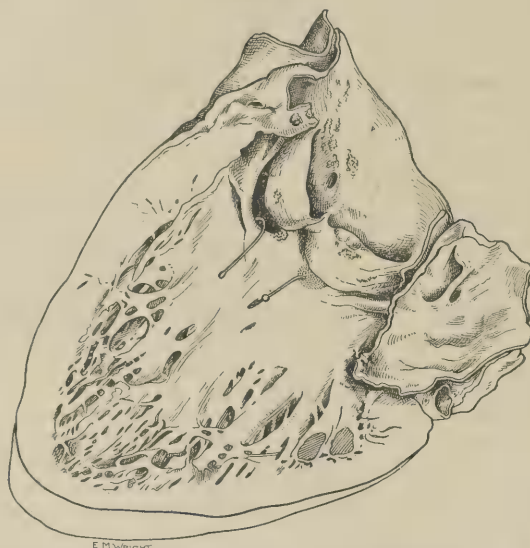
At the time I was first seeking an explanation of this particular form of deficiency of the septum of the ventricles I entertained the commonly accepted view that the main stems of the aorta and pulmonary artery were formed from the bulbus arteriosus or bulbus cordis by the division of that tube into two, and that the septum formed in the process of this division extended down into the common ventricle, where it was met by the upward-growing septum which effects the division of that chamber. I therefore saw in the anomaly a failure of fusion between the inter-ventricular and interbulbar septa. I was soon led to modify this view by the study of a paper by Professor Arthur Keith on Malformations of the Bulbus Cordis which appeared in the Quatercentenary Publications of the University of Aberdeen. Partly as the result of his own investigations in comparative anatomy and partly from a study of the embryological work of Greil, Keith was able to point out that the fate of the bulbus cordis is different from that mentioned above. By far the greater part of the bulbus is developed into the conus

¹ The references in the text to the different semilunar segments will be clearer if read in connexion with Fig. 3.
No. 4767.

arteriosus or infundibular part of the right ventricle, a very small portion of limited vertical extent being probably represented by the extreme upper part of the left ventricle just at its opening into the aorta. The aorta and pulmonary artery are not therefore formed from the bulbus cordis at all, but result from division of the common aortic stem. In bringing the specimen before the Anatomical Society in 1907 I interpreted the anomaly in the light of these newer views. The aperture became in my opinion "interbulbar" and was due to an imperfect formation of the septum which divides that part of the heart.

In some of his previous writings Keith had described two bands which are visible on the

FIG. 1.



View from left side. Aperture in septum shown by bent pointer passed through it. Another pointer passes through the pars membranacea septi at the stippled area.

posterior wall of the conus of the right ventricle when that cavity is opened from the front. These he calls respectively the reptilian and the mammalian band. The former descends towards the apex along the ventricular septum and is called the left infundibular or apical band; the latter, which he terms the right infundibular or lateral band, passes outwards on the lateral wall of the right ventricle towards the margo acutus. These two bands, as he points out, meet on a raphé which is sometimes quite distinct, and which extends from the commissure of the two septal pulmonary segments above to the pars membranacea septi below. This raphé indicates the position of the two ingrowing processes which form the septum of the bulbus cordis. It is in the line of this raphé that deficiencies in the bulbar septum are met with, and in the specimen I describe it will be seen that the long axis of the aperture coincides with its upper half (Fig. 2).

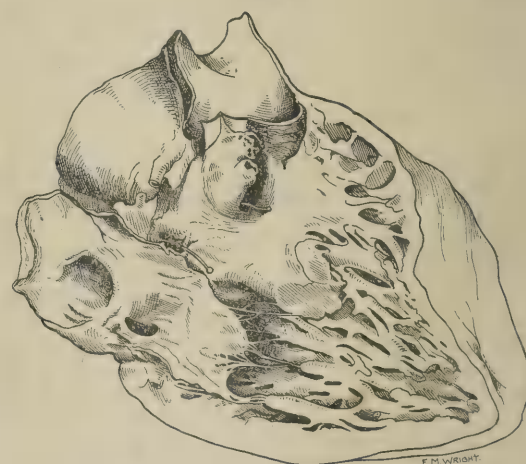
REFERENCES TO SIMILAR CASES.

In the article on Congenital Malformations of the Heart by Laurence Humphry in Allbutt's "System of Medicine" I found references to five cases which appeared to be of the same nature as the specimen I have described. Two of these cases were mentioned in Peacock's work published in 1866 (second edition); Rokitsanski was credited with two cases; and a reference was made to the case recorded by Dr. Sidney Coupland

in 1879, an undoubted example of the unusual defect I have described. The two cases mentioned by Peacock were said to be in the Museum of St. Thomas's Hospital, but there was some ambiguity in the references he gave. Coupland also in commenting on his own specimen mentioned these two cases recorded by Peacock, but I gathered from the context that he had not inspected them himself.

As I knew that Professor Keith had about that time (1905) been making a very full examination of all the malformed hearts in the London museums I wrote to him on the matter, calling attention to the ambiguity of Peacock's references, and asking if he knew the specimens. In his reply Professor Keith was very careful to lay down the criteria which should guide us in determining the admission of specimens to the class of that described by Coupland which he regarded as essentially the same as that on which I was working. It was not enough that the aperture as seen from the left side of the heart should be in the same situation, but when inspected from the right side it must open into the infundibular part of the right ventricle, and must not be separated from the pulmonary segments by an area of cardiac tissue which would indicate the completion of the septum of the bulb. In regard to the reputed cases at the Museum of St. Thomas's Hospital he wrote: "There is no record of this type of specimen in my notes of the abnormal hearts at St. Thomas's Hospital; either Peacock was mistaken, or they have disappeared, as they are not now placed with the specimens on the shelves." In Peacock's work it is stated that the specimens formed a part of Sir Astley Cooper's museum, and that they were described by Dr. J. R. Farre. In addition to other abnormalities they are described by Peacock as presenting "a deficiency in the septum, interposed between the left and the infundibular portion

FIG. 2.



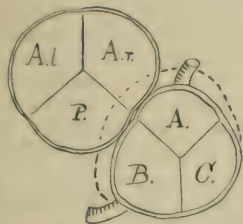
View from right side. The other ends of the two pointers shown in Fig. 1 are seen. The aneurysmal bulging of the anterior aortic segment is seen with the two apertures on its summit. The posterior pulmonary segment is seen to be thickened. A small part of the antero-right segment is preserved. The whole of the antero-left has been taken away.

of the right ventricle, immediately below the origin of the pulmonary artery." I have referred to the original description by Farre. The specimens are described under the heading of "Ostium Arteriæ Pulmonalis Communicating with Both Ventricles." They are probably both examples of the deficiency described by Coupland and myself; further than

this I cannot go, for though the description is supplemented by plates, these do not supply all the data on which to base a certain opinion.

Of the cases recorded by Rokitsanski Keith accepted one (Case No. 20—that of a boy three years of age), but he rejected the other (Case No. 19), as there was clear evidence that the interbulbar septum was complete. From his notes on the specimens in the various London museums he was able to give me the following references to cases

FIG. 3.



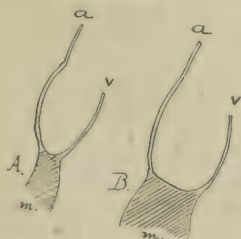
A, Anterior aortic segment. B, Postero-left aortic segment. C, Postero-right or non-coronary segment. P, Posterior pulmonary segment. A.r, Antero-right pulmonary segment. A.l, Antero-left pulmonary segment. A, B, P, and A.r, constitute the four *septal* segments of Keith. The interrupted line shows the extent to which the aortic root is embraced by the muscle of the ventricles.

which appeared to him to conform to the type of that at which I was working. One of these, in the Museum of St. George's Hospital, was "evidently described by Rolleston in the Transactions of the Pathological Society." The patient was a boy aged 11 years. The opening into the right ventricle was three-eighths of an inch below the pulmonary valve and "just above the origin of the posterior or fixed, and of the anterior cusps of the tricuspid valve." The second was in Guy's Hospital Museum (No. 2309, the patient a female aged 19). The third was in the Museum of the Royal College of Surgeons of England (No. 580).

THE CONDITION OF THE ANTERIOR AORTIC SEGMENT.

The aneurysmal dilatation of the anterior segment of the aortic valve and its projection into the right ventricle, which I have mentioned, was a striking feature of the specimen. This condition of the valve is mentioned by Coupland as having been present in his case also, but the projection

FIG. 4.



Showing the usual relationship of the muscle of the ventricle to the aortic valve (A) and the unusual relationship mentioned in the text (B). Aortic wall, valve segment, and ventricular muscle indicated respectively by the letters *a*, *v*, and *m*.

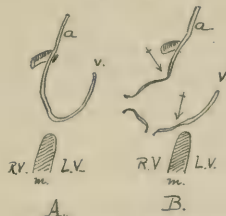
was much less and the valve segment was entire. To understand the condition one must study the relationship of the root of the aorta to the musculature of the heart, and especially to that of the ventricles. From a series of dissections I made to satisfy myself as to this, I found that the root of the aorta is embraced by ventricular muscle on

its anterior and lateral aspects, and that this muscular investment extends backwards on the right side as far as the junction of the anterior one-third with the posterior two-thirds of the right or non-coronary cusp, and on the left side as far as the middle of the postero-left cusp. (Fig. 3.) The whole of the aorta opposite the anterior cusp is closely embraced by ventricular muscle.

The exact relationship of the ventricular muscle to the aorta and to its valve segments varies in another respect. The usual relationship opposite the anterior segment is that shown in the diagram. (Fig. 4, A.) Some ten years ago I put in the anatomical museum a specimen in which the condition was as shown in Fig. 4, B. The valve segment and the coat of the aorta were apparently completely separated from one another; both could be seen to end rather abruptly except for a thin layer of endarterium which preserved their continuity and through which the muscle of the ventricle could be readily seen.

Now in the specimen on which I am commenting there was a complete absence of any support to the aorta and valve corresponding to the greater part of the anterior segment. If we conceive the condition resulting from the failure in the complete formation of the bulb septum to be represented by Fig. 5, A we can readily understand that the condition shown in Fig. 5, B might be brought about by the diastolic aortic pressure. There is a slight bulging outwards of the part of the aorta entering

FIG. 5.



The lettering *a*, *v*, and *m*, as in the former figure. Shows that the infundibular part of the right ventricle is not cut off from the aortic vestibule of the left ventricle. A shows the congenital defect. ■ shows the bulging of the portion of the segment which faces towards the right ventricle. The beginning of the bulging is shown by the two arrows.

into the formation of the sinus of Valsalva, but the main part of the projection is formed by the thinned-out tissues of the valve segment itself, and this is precisely limited to where the ventricular muscle is wanting—namely, opposite its middle three-fifths. From an examination of the specimen I should think that during the early phase of diastole of the ventricle the aperture of communication would be closed by the apposition to its concave margin of the anterior aortic segment at the junction of the greatly thinned-out portion with the rest of the flap, which in this way would be assisted in supporting the diastolic aortic pressure. It will be seen that it is only that part of the segment which is directed to the cavity of the right ventricle which has become stretched, and this raises some further considerations.

CONCLUSION.

The amount of support which the ventricular muscle gives to the semilunar valves has been discussed by the late Dr G. A. Gibson and by others. Dr. Harry Campbell has speculated on the conditions whereby it appears to be the case that the delicate tissue of the aortic valves is able to

support the diastolic pressure of the blood during the whole of a long and active life without giving way, and he concludes that the valves must get support from the part of the ventricular muscle which surrounds their bases remaining in contraction until the pressure in the ventricle has been raised by the entry of blood from the auricle on the relaxation of the general mass of the ventricular musculature. The work of Stewart would appear to support this view, and in the Schorstein lecture, which I had the honour to deliver at the London Hospital in 1912, I mentioned a clinical observation which seemed to point in the same direction. Those portions of the segment, therefore, which were directed respectively to the right and to the left ventricle would be assisted by the conditions, whatever they may be, which enable the delicate tissues of the pulmonary and aortic semilunar valves to perform a task which, without such help, would be clearly impossible. The resources of the left ventricle in this respect are presumably much greater than those of the right, and so it is natural that the portion of the valve which presented to the right ventricle should have been the part to suffer.

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SOME CONDITIONS THAT SIMULATE CHRONIC APPENDICITIS.¹

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I HAVE chosen as my subject some of the conditions that may simulate chronic appendicitis, because in the latter part of last year a distinguished London physician brought a charge of uncritical and unscientific diagnosis against surgeons in connexion with appendicitis, and crystallised it into the taunt, "the craze for appendicectomy." I realise the very grave measure of justice in that charge. Since appendicitis became not only common but fashionable very many appendices have been unnecessarily removed in the absence of any real evidence that they were the cause of symptoms and without any relief to the patients' sufferings, and this is a state of affairs that challenges us to approach the diagnosis of appendicitis in a critical attitude of mind.

It is in the diagnosis of *chronic* appendicitis that mistakes are most often made, and I propose to limit my remarks to some of the conditions simulating that variety of chronic appendicitis in which

there have never been any severe acute attacks—a form of the disease that is characterised by chronic pain and some tenderness in the right iliac fossa, accompanied as a rule by constipation. I do not propose to consider those more distant imitators and associates of chronic appendicitis, gastric or duodenal ulcer and gall-stones; nor must I stay to discuss lesions of the right kidney and ureter, with which at times chronic appendicitis may be confused. I propose only to deal with certain structures in the more immediate neighbourhood of the appendix, and first I have to mention Lane's ileal band and Jackson's pericolic membrane.

Lane and his followers hold that the symptoms we are considering, as well as an enormous number of other symptoms, are often due to an intestinal stasis or chronic obstruction, which is caused by an abnormal band of adhesions that we sometimes find attached to the ileum some three inches above the ileocaecal valve. Normally the lower ileum rides freely on its mesentery right down to its junction with the caecum. Lane's ileal band, when present, is a fold of peritoneum on the left or inferior side of the ileum (see illustration), which tethers the gut down to

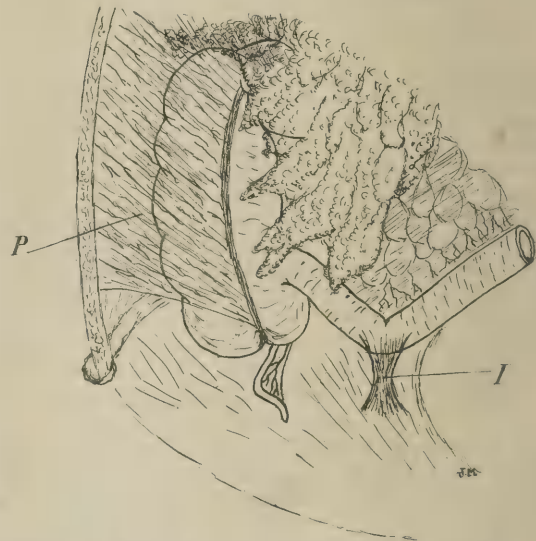


Diagram showing Jackson's pericolic membrane (P) and Lane's ileal band (I).

the parietal peritoneum over the psoas muscle near the pelvic brim. It is said by Lane to be acquired as the result of a tendency to enteroptosis, and to cause a kink of the ileum and chronic obstruction to its contents. Others have considered that it is an inflammatory band. Both these views of its causation, however, have been severely criticised, notably by Gray and Anderson in this country,² and Flint in America,³ who drew attention to the frequent occurrence of the ileal band in the full-time foetus, and demonstrated its congenital origin. I am able from my own embryological and clinical observations to confirm the congenital origin of the band. It is the same structure as the genito-mesenteric fold of Douglas Reid, and is a peritoneal fold drawn down from the left side of the lower part of the mesentery by the testis or ovary in its descent. Some trace of it can be made out in almost any foetus beyond the fifth month, though it is only fully developed in a small percentage of cases. I

¹ An address delivered before the Lancashire and Cheshire Branch of the British Medical Association.

² THE LANCET, May 10th, 1913, p. 1300.

³ Johns Hopkins Hospital Bulletin, October, 1912.

do not believe, however, that this congenital fold, unless secondarily thickened and contracted by inflammation of the appendix, which is occasionally fused with it from before birth, ever gives rise to the symptoms that have been ascribed to it, or indeed to any symptoms at all. I have made it a rule for nearly two years to look for it where feasible in every exploratory laparotomy, and have found a well-marked ileal band in some 10 per cent. of patients of all ages. In no case did I find any distension or hypertrophy of the gut above it as compared with the gut below, nor any definite narrowing of the lumen, nor were the clinical histories or the radiographic findings suggestive of chronic obstruction. Further, in the fibrous form of tuberculous peritonitis one is often struck by the fact that the small intestine can move its fluid contents along without apparent difficulty, in spite of kinks and adhesions that look as though they ought surely to have caused complete obstruction—kinks and adhesions compared with which this congenital anomaly of the lower ileum is insignificant. On all these grounds I feel bound to express my belief that Lane's ileal band, apart from inflammatory changes that may occur in it accidentally, is of little or no importance in the causation of disease, and that the many ingenious operations devised for dealing with it are the outcome of misdirected enthusiasm.

Jackson's pericolic membrane, on the other hand, is a structure which may undoubtedly give rise to symptoms simulating chronic appendicitis, though I hold that it does so less commonly than many writers on the subject would have us suppose. Let me first explain briefly what this interesting peritoneal membrane is. In its fullest development it is a delicate vascular sheet of peritoneum which is occasionally met with, stretching from the parietal peritoneum in the back of the right loin, across the groove or fossa on the outer side of the ascending colon, to fuse with the anterior longitudinal tænia on the cæcum and ascending colon. (See illustration.) It is not an acquired or inflammatory adhesion, as many have maintained, but is of congenital origin, and represents, as I have recently shown,⁴ a delay in the process of development, or reversion to a primitive type, comparable with such deformities as hare-lip or imperforate anus. At an early stage of intra-uterine life, after rotation of the midgut loop, the great omentum extends over the cæcum and proximal colon to the right, and fusing with the anterior longitudinal band or tænia of the colon on the one hand, and the parietal peritoneum of the right flank on the other, becomes the earliest means by which the colon is fixed back into the right loin. Before birth, as a rule, this right process of the omentum almost completely disappears, though a trace of it can always be seen in the living body, but should the proximal colon be unduly mobile from failure of its primitive mesocolon to fuse, the original extent of the omentum may persist as Jackson's pericolic membrane.

In the greater number of these cases the symptoms are due, I believe, not to the pericolic membrane, but to the abnormal mobility of the cæcum and ascending colon, on which I have a word to say directly; but I have operated on two cases recently in which a much more limited parieto-colic peritoneal band, congenital in origin and a relic of this same structure, had bound down

and constricted the ascending colon, giving rise to symptoms which precisely simulated chronic appendicitis.

I come now to the question of mobile cæcum, or, as I prefer to call it, mobile proximal colon, for it is a condition which does not involve the cæcum only. It has long been recognised that there is a not uncommon congenital abnormality of the peritoneum in which the cæcum and ascending colon, instead of being fixed down in the loin, are mounted on a loose mesocolon, continuous more or less with the mesentery of the small intestine; but we are only beginning to realise what grave symptoms may result from this error in development. The mobile proximal colon is the normal arrangement in pronograde mammals such as the cat and dog, but with the evolution of the upright posture fixation of the colon back into the loin by peritoneal fusion became necessary in order to enable the gut to push on its contents against gravity and to resist a tendency to enteroptosis. Our knowledge of the physiology of the colon, though advanced by recent discoveries, is still far from complete, but a study of its comparative anatomy and of the clinical evidence convinces one that these individuals with mobile proximal colons are from birth predisposed to constipation and the multifarious evils resulting from it. I have met with cases of this sort without any pericolic membrane, though the two abnormalities often coexist.

The symptoms of mobile proximal colon often closely resemble those of chronic appendicitis, and actual association of the two conditions is not uncommon, the intestinal stasis and appendicitis being secondary results of the mobility of the colon. Mere removal of the appendix in such cases is not enough, but in addition the proximal colon should be fixed back into the loin by a series of interrupted sutures, and Nature's usual method of fixation of the colon thus imitated. I have seen great relief from severe constipation and right iliac pain result from this operation of colopexy, and believe that it is a far more rational procedure than such mutilating operations as excision of the colon. The preoperative diagnosis of mobile proximal colon is difficult, but the greatest help is obtained by examination of the colon on the fluorescent screen after a bismuth or barium meal.

In addition to the congenital peritoneal adhesions that I have mentioned, inflammatory bands are not rarely met with in this region, both as a result of old-standing appendicitis and as a sequel of former tuberculous inflammation. Great and I believe unnecessary confusion has arisen between the congenital and the inflammatory type of peritoneal adhesions, the reason being that until recently the occurrence and significance of the former were not widely recognised. I do not say that it is never difficult to differentiate between them, but broadly it holds true that inflammatory peritoneal bands are tough, fibrous, opaque, and not very vascular, while congenital adhesions are translucent, more yielding, filmy, and vascular. If these distinctions are borne in mind it is usually possible to differentiate between them, though not, of course, before operation.

For lack of time I must pass over the question of ileocaecal growths and massive ileocaecal tuberculosis, though they should properly be considered with this subject, but I must make very brief mention of what is perhaps the commonest cause of an erroneous diagnosis of chronic appendicitis—viz., right chronic tubo-ovarian disease. It is due as a rule to an insidious ascending infection from

* THE LANCET, Dec. 13th, 1913, p. 1685.

the uterus, either gonorrhœal or septic. The pain is usually, though not invariably, worse at the menstrual periods, and in some of these cases on palpation in the right iliac fossa there occurs a reflex tonic spasm of the psoas muscle which I have seen mistaken both for an appendicular abscess and for a neoplasm. The subject of these ovarian conditions, simple and tuberculous, is far too large, however, to be dealt with adequately now. I feel that a too rigid demarcation between surgery and gynaecology has done harm to both, and that surgeons who are constantly operating in the abdomen might well take a far more intelligent interest in the tubes and ovaries than has been customary of recent years.

In cases of chronic pain in the right iliac fossa a careful and thorough physical examination, with an equally careful history, will often enable us to make a fairly confident diagnosis of the underlying condition, but in a large proportion of these cases we must frankly admit that with our present clinical methods a precise preoperative diagnosis is not possible. What we can say is that exploration is advisable, since where the pain in this region is persistent and severe there is nearly always an organic cause, capable of relief by well-considered surgical means.

It is not pleasant to operate without a precise preoperative diagnosis. Patients do not like it always, since they are apt to demand omniscience. But it is a far more scientific and indeed a more honourable thing to admit our limitations and to explore with an open mind than it is to operate with one's eyes blinded by a positive diagnosis, given where certainty is not truly possible.

The lesions which may simulate chronic appendicitis are so many that an adequate incision is imperative. There should be no more blind removals of the appendix in these dubious cases through a two-inch gridiron incision, but through a sufficiently large incision, usually a vertical one through the right rectus, and preferably under spinal anaesthesia, we should inspect not only the appendix but all the other structures that may possibly have been the cause of the trouble, and we should deal with them according to the actual conditions found, and not according to any preconceived opinion of the thing we ought to find.

Manchester.

UNIVERSITY OF EDINBURGH: ANNUAL REPORT.—

The annual report for 1914 bears in many places the imprint of the war. During the year there were 732 fewer matriculated students than in 1913. The numbers matriculating in the Faculty of Medicine were 1025, or 290 less than in the previous year. The marked decrease in the numbers of male undergraduates in the various faculties is, of course, principally due to the fact that prior to the opening of the autumn session a large body of students, actual and prospective, had already gone to serve in some branch of His Majesty's forces. The university authorities have accorded various concessions to those who are serving their country, and additional students have thus been enabled to enrol themselves. The authorities have also strongly urged all male students to undergo military training. The following medical degrees were conferred during 1914: Doctor of Medicine, 41; Bachelor of Medicine and Master in Surgery, 1; Bachelor of Medicine and Bachelor of Surgery, 189. The Diploma of Tropical Medicine and Hygiene was conferred on eight candidates. Dr. James M. Graham was appointed first Lecturer in Surgical Pathology, this being one of the four new lectureships instituted by the University Court. The vacancy in the Chair of Medicine, caused by the retirement of Professor Wylie after 14 years' good service, has not yet been filled.

PNEUMOPERITONEUM OF THREE DAYS' DURATION FOLLOWING RESECTION OF A CARCINOMATOUS RECTUM; EVACUATION OF THE GAS AND OF A PELVIC ABSCESS; RECOVERY; NO RECURRENCE AFTER FIVE YEARS.¹

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THE absence of recurrence after five years is satisfactory, but the pneumoperitoneum constitutes the chief interest of the following case.

The patient, a stout woman, aged 60, complained of pain and hæmorrhage from the bowel. After six months an ulcerated tumour was found in the posterior wall of the rectum, but there was no fixation of the part, and on Dec. 31st, 1909, the rectum was removed in the Samaritan Free Hospital by a combined abdominal and perineal method described by C. H. Mayo.² The abdomen was opened, the bowel was divided above the new growth, and both ends were closed. The rectum, with as much pelvic fat as possible, was separated and everted through the anus. The projected mass was then cut off between the growth and the internal sphincter. The remaining part of the rectum was held in its everted position by forceps, and through it the lower end of the mobilised sigmoid flexure was brought down. This was opened, and the bowel ends were united by interrupted sutures and replaced in the pelvis. The union was considered so accurate that Mayo's recommendation to drain the pelvis through an incision behind the anus was not followed.

After the operation the highest temperature was 100° F., the bowels acted, and no unfavourable sign was noticed until the sixth morning, when the abdomen was distended. The bowels never failed to move when laxative medicine was given, and there was no vomiting, but the distension rapidly increased and on the ninth day it was very great, the abdomen being tense and tympanitic all over and the pelvic floor being pushed down. The temperature was 99·2°, the pulse-rate was increasing, but only 118 and of fair volume. Respiration was not greatly distressed, and the general condition was alarming only because of the increasing distension.

The abdomen was reopened and its anterior wall immediately fell with a flop upon the intestines, which occupied a very small space. A large quantity of gas necessarily escaped, and an absence of odour was observed. The exposed part of the peritoneal sac contained no fluid, and its serous surface was very pale and showed no sign of inflammation. The intestines were not adherent except in the pelvis, where all the parts were matted together. On separating these many ounces of offensive pus were released. The abscess cavity, which contained no free gas, was drained through the lower end of the incision, the remaining part of which healed by first intention and no further accumulation of gas took place. After drainage of a secondary collection of pus through an incision in the right groin the abscess healed slowly and otherwise recovery was uninterrupted. When the patient left my care the line of anastomosis was fixed by cicatricial tissue, but there was abundant room for the passage of feces. On Dec. 28th, 1914, the patient's general health was good and her only trouble was constipation, which necessitated the use of senna pods every second day.

The specimen removed appeared on section to be localised and to grow into the lumen of the bowel rather than into the tissues. It was described by Dr. Cuthbert Lockyer as a columnar-celled carcinoma.

It is inconceivable that gas could escape from the intestine into the peritoneal cavity through any opening, however small, during a period of three days without an escape of organisms which would induce a general peritonitis. There is also no evidence that gas can escape through the wall of the

¹ A paper read in the Surgical Section of the Royal Society of Medicine, Jan. 6th, 1915.

² Surgery, Gynaecology, and Obstetrics, 1906, vol. iii., p. 236.

healthy intestine, and it would seem therefore that the gas developed in the peritoneal cavity, which could occur only from the action of some aerogenic organism. Many descriptions of such organisms have been published, but only two are generally recognised as producing gases in the tissues apart from putrefactive changes. These are the bacillus *aerogenes capsulatus* of Welch and the bacillus *oedematis aerobius* of Sanfelice.

The bacillus *aerogenes capsulatus* was isolated by Welch in 1891, and described by Welch and Nuttall in 1892.³ A patient from the service of Sir William Osler died from repeated hæmorrhages from an aneurysm which ruptured through the chest wall. No gas was observed in the tissues before death, but eight hours later in cool weather there was a general emphysema most marked near the region of the rupture. The gas in the veins and tissues ignited with a slight detonation and burned with a pale blue flame. An analysis published in 1897 by E. K. Dunham⁴ shows that the gas developed in such a case is composed of hydrogen 64.3 per cent., carbon dioxide 27.8 per cent., and nitrogen, &c., 8.1 per cent. In Welch and Nuttall's case it had no distinctive odour and there was no putrefactive odour or green discolouration of the body. The bacillus *aerogenes capsulatus* was found in association with the bubbles of gas and was the only organism that developed under anaerobic conditions. When 2½ c.c. of a pure culture were introduced into the vein of a rabbit no symptom of any kind followed in 5 out of 6 experiments. In the sixth the rabbit was seen quite lively 20½ hours after the injection, but half an hour later it was found dead, and after death it became emphysematous. This rabbit was pregnant, and two of her fetuses were macerated and much smaller than the others, having evidently been dead some time. When a rabbit was inoculated and killed within two days emphysema always developed after death, and the gas accumulated "with almost startling rapidity" when the rabbit was killed a few minutes after the injection and kept at a temperature between 30° and 35° C. Introduced into the vein of a dead rabbit the bacillus caused bubble formation spreading to a limited extent along the vessel.

E. Fraenkel injected the bacillus into the subcutaneous tissues of mice without effect. In rabbits thus treated oedema with necrosis was occasionally produced, followed by recovery. In guinea-pigs a spreading gangrene with gas formation developed and was followed by death. There was no suppuration unless pyogenic organisms were also introduced, and in these experiments the production of gas was usually localised in the necrotic area, even after death. In 1896 Welch and Flexner recorded 23 cases in which with one exception the bacillus *aerogenes capsulatus* was identified. In no case was gas found in the peritoneal or pleural cavity without hæmorrhagic infarction of the bowel or

lung. In one case the invasion of the bacillus was limited to two circumscribed areas of intestine. The bubbles, from the size of a pea downwards, involved the whole intestinal wall and the bacillus was found in the adjacent tissue, but in no other organ nor in the blood. It was present in the intestine. A case related by Graham Steward and Baldwin⁵ was quoted in which a woman after a miscarriage became emphysematous all over her body four hours before death.

The bacillus *oedematis aerobius* was first described by Sanfelice. In 1901 Corner and Singer⁶ recorded a case in which a bacillus was found "identical with that of Sanfelice." In 1904 Dudgeon and Sargent⁷ described a case and discussed very fully the bacteriology of the organisms concerned. They showed that the bacillus isolated did not cause gas formation when a culture was introduced into the veins of a rabbit which was almost immediately killed. The bacillus was therefore not the bacillus *aerogenes capsulatus* of Welch. They concluded that their case and that of Corner and Singer were "examples of that small group of cases of emphysematous gangrene which was caused by the bacillus coli." They pointed out, as did Welch, that no one had ever produced gas formation in any animal by injecting this bacillus. But when it was introduced into the tissues with the staphylococcus pyogenes aureus (Chauvenez) or with the proteus vulgaris (Muscatello and Gangitano) gas formation had been obtained.

The details of the characters of the gas-producing bacilli are highly technical, and those interested should study the papers of Dudgeon and Sargent, Welch, and others. It seems to me that those of M. H. Gordon⁸ and Theobald Smith⁹ are also important. These writers have shown that streptococci and staphylococci and the bacillus coli are capable of differentiation into subspecies which breed true. It seems to me that these observations offer a satisfactory explanation of the many manifestations which are attributed, for example, to the action of the bacillus coli.

The bacilli under consideration are widely distributed in nature. They may be found in the intestines of animals, in milk, in surface water, in soil, in cesspools, and in many other surroundings. The bacillus *aerogenes capsulatus* was detected in 69 out of 250 wads of blank cartridges. This bacillus seems to develop gas more freely and more rapidly than the bacillus *oedematis aerobius*, and I think it was the active agent in the case now recorded, but without bacteriological evidence no definite statement can be made. The case is, I believe, unique. Dr. James F. W. Ross described exactly the same conditions of pneumoperitoneum with contracted intestines, but in his case the condition arose in a woman suffering from puerperal septicæmia with high temperatures. The gas was let out 34 days after delivery, but it reaccumulated, and death followed in three days. Mr. (now Sir Rickman) Godlee published in 1877 three cases of gas and fluid in the unwounded peritoneal cavity, and in one the patient was alive five weeks after the gas and fluid were released. This is the only case I

³ A gas-producing bacillus (*Bacillus aerogenes capsulatus*, nov. spec.) capable of rapid development in the blood-vessels after death. Bulletin Johns Hopkins Hospital, July, August, 1892, p. 81. This bacillus was described again in 1893 by E. Fraenkel (Centralblatt für Bacteriologie und Parasitenkunde, Band xiii, pp. 13-16), who called it the bacillus phlegmones emphysematosa, but subsequently agreed that it was the bacillus *aerogenes capsulatus*. Eugene F. McCampbell (The Toxic and Antigenic Properties of Bacterium Welchii, Journal of Infectious Diseases, 6, 1909, pp. 537-63) asserted that the bacillus enteritidis sporogenes (Klein), the bacillus perfringens (Veillon and Zuber), the granulo-bacillus saccharo-butyricus immobilis (Schattenfroth and Grassberger), the bacillus anaerobius cryptobutyricus (Achalme), the bacillus cadaveris butyricus (Buday), the bacillus of Cesaris-Demel, and the bacillus emphysematis vaginae (Linderthal), are all undoubtedly the bacillus *aerogenes capsulatus* of Welch.

⁴ Report of five cases of infection by the bacillus *aerogenes capsulatus* (Welch), Johns Hopkins Bulletin, 1897-98, p. 69.

⁵ Columbus Medical Journal, 1893.

⁶ Emphysematous Gangrene, by Edred M. Corner and W. Douglas Singer. Transactions of the Pathological Society of London, 1901, pp. 42-60.

⁷ Case of Emphysematous Gangrene caused by the Colon Bacillus, by Leonard S. Dudgeon and Percy M. Sargent. Transactions of the Pathological Society of London, 1904, pp. 107-118.

⁸ Report on Some Characters by which Various Streptococci and Staphylococci may be Differentiated and Identified.

⁹ Note on Bacillus Coli Communis and Allied Forms. American Journal of the Medical Sciences, vol. ex., 1895, p. 283.

know of except that now related in which an accumulation of gas in the peritoneal cavity has been survived without the closure of a wound through which the gas had passed into that cavity.

Wounds associated with emphysema of the surrounding tissues are almost always fatal unless the affected part is promptly amputated. Occasionally a cure may be effected by making very free incisions. On the other hand, the bacillus aerogenes capsulatus may circulate in the healthy tissues without harm, and the case now related shows that in exceptional circumstances recovery may follow distension of the peritoneum by gas. It seems to me that the organism gained access to the tissues during or soon after the operation, but was harmless until the pressure of the abscess diminished the vitality of the adventitious tissue between the pus and the peritoneal cavity sufficiently to allow the organism to develop in that membrane and cause gas formation, whilst some unfavourable condition in the abscess cavity prevented gas production there. Conversely the increased vitality of the tissues, brought about by the relief of tension in the abscess and in the abdominal cavity, was sufficient to arrest the aerogenic action of the bacilli.

The facts that the bacillus aerogenes capsulatus usually develops only in dead or dying tissue and the invariable association of the bacillus oedematis aerobius with septic organisms have developed a new interest since these notes were written. The men of our Expeditionary Force in France are constantly in recently-made trenches, where the opportunities are numerous for infection of wounds by anaerobic organisms found in the soil. Already a number of cases of emphysema complicating injuries have been recorded, and the bacilli under consideration have been separated from these wounds. It is obvious that to prevent the occurrence of this complication, which is almost always an indication of extreme danger, it is necessary to preserve the vitality of the parts in every possible way, and this necessity adds force to the plea made by Sir Watson Cheyne at the Medical Society and by others for an intelligent application of the teachings of Lister to the conditions of the present war. Aseptic surgery is impossible when the wounds are made septic as they are inflicted. An attempt should therefore be made to sterilise these infected wounds at the earliest possible moment by a vigorous use of antiseptics.

Wimpole-street, W.

OSTEOPLASTIC RESECTION OF THE SKULL IN DECOMPRESSION OPERATIONS ON THE BRAIN.

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Two cases of brain disease with pressure on the cortex, which I have at present under treatment, have suggested a method in modification of the current procedure in decompression operations, and it may be apposite at this time. One case shows the disadvantage of removal of a large portion of bone, the other case shows the converse difficulty which may arise from replacing a temporarily resected flap of bone.

The first patient, a male, aged 40 years, was operated on some months ago by a well-known

brain surgeon for intracranial pressure, probably due to tumour. The bone in the left temporal region has been removed over the silent area, apparently by Cushing's method, and at this date there is a large protrusion of the brain forming a hernia cerebri. The other patient, a female, aged 60 years, was operated on by me 14 days ago. There was a fracture of the base of the skull with intradural hæmorrhage, and pressure signs on the left side of the motor area of the cortex.

A large flap was made in the soft tissues, and four holes were drilled with a Doyen's burr at the angles of a rectangle of bone, measuring 3 inches by 2½ inches. With a Gigli's saw the resection was completed and the brain exposed in 15 minutes from the first incision. On incising the dura an amount of blood issued and drained away, leaving a pulseless, flat-looking area of cortex. The lower anterior drill hole was enlarged with nibbling forceps and utilised as a drain, and the bone with its cover of soft tissue was replaced. Relief from pressure was observed for a week, then evidence of irritation recommenced. In the next four days



Diagrammatic sketch to illustrate "pepper-pot" trephining for the relief of intracranial pressure.

there were no less than 450 fits of Jacksonian nature counted, affecting mostly the right side of the face, with conjugate deviation of the eyes to the right and aphasia, followed by unconsciousness with Cheyne-Stokes respiration, due to pressure on the face centres and Broca's lobe. Four days after the onset of these seizures—that is, 11 days after operation—the wound was reopened and a quantity of blood-clot turned out from the brain surface, where it had collected under the bone and caused pressure. The whole portion of resected bone was removed from the tissue flap, and the skin and muscle and aponeurosis only replaced. Immediately and obviously the pressure signs ceased, and in the next three days there were but two slight fits observed, the breathing and pulse improved, and the general condition got better.

Now this case stands much the same as the first example quoted; there is a large bony gap, which must either remain, to the inconvenience or danger of the patient afterwards, with also the risk of hernia cerebri, or else the hiatus must be filled in by bone mosaic, osseous graft, or mechanical obturator. In similar cases, therefore, I propose to try the effect of a procedure which I have not seen described before, the object of which is to amalgamate the advantages of temporary resection with those of permanent removal of bone.

Osteoplastic reaction is easy, speedy, and gives good access, without good drainage to prevent the

ill-effects of any compressing agent effused beneath the window of bone. On the other hand, nibbling operations are more difficult and more prolonged, yet there is complete freedom from any fear of inefficient relief of pressure. What I suggest, then, is preliminary resection of a flap of soft tissue and bone in the usual way, following this up by "pepper pot" trephining of the flap raised. This can be done effectively and quickly with a burr, perforations $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter being drilled at close intervals from the interior of the reflected plaque, right through the osseous tissue, but not including the soft parts. The bone flap will then be a sort of retaining cage of a basket-like, fenestrated, or pepper-pot texture. This should efficiently retain the brain without risk of hernia and yet with satisfactory relief from pressure. A diagram of the idea of the operation is given.

A THIRD OUTBREAK OF EPIDEMIC POLIOMYELITIS AT WEST KIRBY.

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THE occurrence of cases of poliomyelitis at West Kirby for the third year in succession appears to me to present so many interesting features that I have ventured to put these few notes together, as so far I am not aware that there have been similar occurrences in any other district.

The first case in 1914 occurred on August 10th in a house within a quarter of a mile of the solitary case of 1912, and within the same distance of the first case of 1913, and equidistant from many of the other cases of 1913. The father of the first patient is a medical practitioner who attended two of the cases of 1913, and although this may only be a coincidence, yet it opens up a field of speculation and emphasises the importance and necessity of precautionary methods being adopted by all who come in contact with, or have to deal with, acute poliomyelitis. The following are the numbers of children attacked in each outbreak: 1912, 1 case; 1913, 7 cases;¹ and 1914, 4 cases. Some brief clinical notes of the cases may be of interest.

CASE 1.—A male aged 3 years; West Kirby. The illness began on August 10th with violent headache but no sickness. He complained also of dryness of the mouth, and his breathing was very laboured and difficult. On the 13th twitching of his right arm and leg was noticed, and on the 15th paralysis was definitely established. The paralysis of his right arm and leg gradually disappeared, and three weeks later the boy was going about practically well. The affected muscles, however, remained flaccid, and the right knee-jerk absent. There were no other children in the house.

CASE 2.—A female aged 6 years; Hoylake. The illness began on Sept. 22nd with headache and sickness. On the next day there was complete paralysis of the child's arms and legs, and she was unable to lift her head. Death occurred two days later (on the 25th). There were two other children in the house, one younger than this case.

CASE 3.—A male aged 3 years; Hoylake. The illness began on Oct. 1st with feverishness and vomiting, but without headache. On the 4th paralysis of the left arm was noticed. There were two other children in the house, both older than this case.

CASE 4.—A male aged 6 years; Hoylake. The illness began on Oct. 2nd with feverishness, headache, and

vomiting. On the 6th there was paralysis of both arms and legs, but left arm paralysis was pronounced. There was one younger child in the house.

Distribution of Cases.

Case 1 occurred in West Kirby in the circumstances already mentioned. Case 2 occurred in Hoylake, about a mile away from Case 1. It may be mentioned here that Hoylake and West Kirby are practically one town and are model seaside resorts, clean, well drained, and well paved. Cases 3 and 4 were also in Hoylake, one on either side of Case 2 and about half a mile away from it. No other cases occurred in West Kirby and, as far as is known, no cases developed among visitors after leaving the district. No cases were reported from any of the adjoining districts.

Possible Sources of Infection.

Milk.—All the Hoylake cases had a common milk-supply. In outbreaks of poliomyelitis it is most unusual to find the milk-supply concerned. The apparent implication of the milk-supply here might, of course, be only another coincidence, but Case 3 was fully a mile away from Case 4, in a well-populated district, or rather town, and therefore the milk, with those engaged in its distribution, is bound to fall under suspicion.

Dust.—The two towns are very clean and free from ordinary dust. Sand from the shore is often blown about the towns by the wind, but this is more usual in winter than in summer.

Flies.—No excessive prevalence of flies was noticed. Against the theory of infection by means of flies it may be pointed out that poliomyelitis is increasing, while owing to the diminishing use of horses the chances of infection by biting flies are steadily decreasing.

Other insects.—In the facts elicited regarding the cases of 1912 and 1913 there appeared to me to be some foundation for suggesting that possibly the infective agent was at times conveyed by means of lice. In this outbreak it has not been possible to collect any evidence which would substantiate this theory. On the other hand, I may say that on several occasions I have been asked if it was possible for sand fleas to convey the infection of poliomyelitis, as most of the children affected had paid recent visits to the shore.

Carriers.—It is held by many that the disease is spread by carriers, and that the cases are only "unfortunate incidents in a widespread benign infection" (R. McLaren). It is quite possible that this is so either directly or indirectly. The occurrence of these four cases would appear to support the theory of carriers, and additional support is probably given by the implication of the milk-supply.

It is worthy of note also that these four cases occurred within a very limited area, and amongst a population of 14,000, and that the disease has taken two years to spread from West Kirby to Hoylake, a distance of only a mile, in, as already mentioned, a well-populated area.

In conclusion, I may remark that though it was not possible to trace any connexion between Case 1 in West Kirby and Case 2 in Hoylake, yet in the recurring outbreaks of three successive years it seems as if one could almost trace a case-to-case infection. I have little doubt that the many puzzles the epidemiology of poliomyelitis apparently presents will, much as in the case of malaria, be finally solved when the means of distribution of the infective agent is or are clearly established.

Hartlepool.

¹ THE LANCET, Nov. 15th, 1913, p. 1380.

ARTERIO-VENOUS ANEURYSM OF THE FEMORAL VESSELS, FOLLOWING BULLET WOUND THROUGH THE LEFT THIGH.

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THIS case is of current interest as it occurred in the present war, and of surgical interest on account of the comparative rarity of the condition.

The patient was a private in the Black Watch, and he was wounded at Ypres on Oct. 29th, 1914, by a rifle bullet which passed through the upper third of his left thigh, from before backward. He was treated for two days at a clearing station, and was then sent into hospital at Boulogne, where he remained for three weeks. He says that on the third day after his admission to hospital at Boulogne his wounds were practically healed and he was allowed to get up. When he did so he found that on walking about he had a tingling pain in his left foot, and on the second day on which he was up he complained of this to the surgeon who examined him, and found that there was a thrill to be felt in the region of the anterior wound. He was put to bed and he remained there until he was sent to England. He came straight through to us from Southampton and reached the Nottingham General Hospital on Nov. 22nd, 1914.

On admission the patient had a pulsating swelling, of about the size of a pigeon's egg, about 4 inches below Poupart's ligament, in the line of the femoral vessels. On the upper and inner portion of the swelling was the wound of entrance—healed. The swelling was expansile, and there was a well-marked bruit to be heard on auscultation. A very marked thrill was to be felt, especially in the line of the vessels proximal to the swelling. Pressure on the femoral artery caused the pulsation in the swelling to cease. These foregoing physical signs left no doubt that a wound of both the artery and the vein had been inflicted, and from the situation it was reasonably probable that the wound in the artery was below the origin of the profunda femoris. The patient was kept in bed, and it was observed that the swelling was increasing in size.

Operation was performed on Dec. 1st. The steps of the operation were as follows. A long incision in the line of the femoral vessels was made from Poupart's ligament for about 8 inches downwards, and the femoral artery and vein were exposed and demonstrated *above* the aneurysm; similarly, the artery and vein were exposed *below* the aneurysm. Then around each vessel separately, both above and below the aneurysm, was placed a temporary ligature consisting of small-sized rubber tubing. In other words, a tourniquet was applied directly to the vessels in the four situations. This secured that the further steps of the operation on the injured vessels were quite bloodless. The femoral vessels where the bullet had traversed them were firmly adherent to each other, and there was scar tissue in the neighbourhood. They were carefully dissected from each other, and it was found that the artery had a wound in front and behind, and that the vein had a wound on its outer side only. The situation and relations of the vessels explain this, as at the position where the wound occurred the vein is beginning to pass behind the artery.

Consequently a wound through the artery just caught the outer border of the vein. The profunda femoris artery was demonstrated, arising about 1½ inches above the wound in the femoral artery. The femoral artery was then ligatured above and below the wound in it, and the wounded portion was cut out. The wound in the vein was a longitudinal slit about ½ inch in length. This was repaired by suture with fine silk and intestinal needle, and the continuity of the blood stream restored. The temporary ligatures of rubber tubing were then removed from the four points where they had been applied, and the wound was found to be dry, no hæmorrhage taking place from either vein or artery. The deep fascia was sutured with catgut and the skin with silkworm gut.

The operation was performed under spinal anaesthesia, which was quite perfect. The patient made an entirely uneventful recovery, getting up at the expiration of three weeks.

Nottingham.

THE VALUE OF TUBERCULIN AS AN ADDITION TO SANATORIUM TREATMENT.

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I LIMIT myself to the consideration of experience with tuberculin at King Edward VII. Sanatorium. We have used tuberculin extensively, and as a result of this work we are now enabled to give a partial answer to the question, to what extent, if any, was the benefit to be derived from an average stay of some six months in the Sanatorium increased by the use of tuberculin, as compared with a similar length of treatment in the Sanatorium when no tuberculin was given.

Results of Tuberculin Treatment.

During the 19 months from October, 1911, to May, 1913, tuberculin was given to 154 patients, this number representing 62 per cent. of all the patients treated in the Sanatorium during this period. Of these 154 patients, 130 (or 84·4 per cent.) had tubercle bacilli in their sputum; the remaining 24 patients had not. They may then be classified as follows: 1. Cases in which pulmonary tuberculosis was believed to exist, though the presence of tubercle bacilli could not be demonstrated in the sputum, 24. 2. Definite cases of pulmonary tuberculosis, tubercle bacilli being present in the sputum: (a) Cases of early disease, (Group I.) 22; (b) cases of moderately advanced disease, (Group II.) 81; and (c) cases of advanced disease (Group III.) 27.

Results of Treatment in 24 Cases in which Tubercle Bacilli were not Found.

These 24 patients all did very well indeed, but it is difficult to decide how best to classify them on their discharge. To record them as on admission presenting early disease, and on discharge arrested disease, would give the encouraging result of something like 100 per cent. of complete recoveries. Such a record, however, would be of no value. These so-called early cases do very well indeed under ordinary sanatorium treatment, it being very unusual for such cases to fail to make an apparently complete recovery. The after-history records of

King Edward VII. Sanatorium show also that it is an unusual occurrence for such patients to relapse after receiving a course of sanatorium treatment and education. The treatment, therefore, of cases diagnosed as pulmonary tuberculosis in the absence of tubercle bacilli, though doubtless of value to the individual patients and of interest in other respects, furnishes us with no useful information as to the value of tuberculin. All that can be said is that such cases do equally well on sanatorium treatment with tuberculin and on sanatorium treatment alone.

The Result of Treatment of 130 Cases in the Sputum of which Tubercle Bacilli were Found.

The results were as follows: Much improved, 64·6 per cent.; improved, 17·7 per cent.; stationary or worse, 17·7 per cent.; lost bacilli, 32·3 per cent. These records of general results and for the loss of bacilli are better than any previous records published by the Sanatorium. It is essential, however, that it be borne in mind that these figures refer to the treatment of selected cases; for the actual proportion of tuberculin-treated cases amounted to but 62 per cent. of all the cases treated in the Sanatorium during the period now under review. The degree of selection exercised introduces a difficulty in estimating the success of our work, since we have no records of the results in similarly selected cases treated by sanatorium methods alone. There is, however, no doubt at all that if the 30 to 40 per cent. of less favourable cases were eliminated from our records of results of sanatorium treatment alone, the figures would be most materially improved. The selection of cases for tuberculin treatment to the exclusion of the less favourable therefore introduces a serious element of fallacy.

A Comparison of the Results of Tuberculin-treated Patients and Patients treated in the Sanatorium without Tuberculin.

The only possible method we have for making a comparison between the results of the tuberculin treated and the non-tuberculin treated is to set out the general results obtained for the whole Sanatorium in the pre-tuberculin days side by side with similar results obtained since the introduction of tuberculin. This gives us a view of the effect upon the general results of the introduction of some 60 per cent. of selected cases treated with tuberculin.

In the following tables I have set out for purposes of comparison the general results and the effect upon the sputum under the two conditions stated: 1. In 764 cases treated in the Sanatorium without tuberculin. 2. In the treatment of 172 unselected cases treated in the Sanatorium during 14 months, of which cases 64·5 per cent. received tuberculin. 3. In the treatment of 130 selected cases treated with tuberculin. These records refer exclusively to patients with tubercle bacilli in their sputum.

TABLE I.—COMPARISON OF GENERAL RESULTS.

1. *Results of Treatment of 764 Consecutive Unselected Patients (T.B. + cases) on Sanatorium Methods Alone.*

	Arrested or much improved.	Improved.	Stationary or worse.
Group 1. (183 cases) ...	87·9 % (161) ...	6·5 % (12) ...	5·4 % (10)
Group 2. (357 cases) ...	57·4 % (205) ...	20·1 % (72) ...	22·4 % (80)
Group 3. (224 cases) ...	20·5 % (46) ...	36·6 % (82) ...	42·8 % (96)
Total. (764 cases) ...	53·9 % (412) ...	21·7 % (166) ...	23·0 % (186)

2. *Results of Treatment of 172 Consecutive Unselected Patients (T.B. + cases) during 14 months—March, 1912–May, 1913—of whom 111, or 64·5 per cent., received Tuberculin.*

	Arrested or much improved.	Improved.	Stationary or worse.
Group 1. (25 cases) ...	84·0 % (21) ...	Nil.	16·0 % (4)
Group 2. (110 cases) ...	55·4 % (61) ...	21·8 % (24) ...	22·7 % (25)
Group 3. (37 cases) ...	18·9 % (7) ...	27·0 % (10) ...	54·0 % (20)
Total. (172 cases) ...	51·7 % (89) ...	19·7 % (34) ...	28·4 % (49)

3. *Results of Treatment of 130 (for the most part) Selected (T.B. + cases) Patients from November, 1911, to May, 1913, treated with Tuberculin.*

	Arrested or much improved.	Improved.	Stationary or worse.
Group 1. (22 cases) ...	95·4 % (21) ...	Nil.	4·6 % (1)
Group 2. (81 cases) ...	70·3 % (57) ...	13·5 % (11) ...	16·2 % (13)
Group 3. (27 cases) ...	22·2 % (6) ...	44·4 % (12) ...	33·3 % (9)
Total. (130 cases) ...	64·6 % (84) ...	17·7 % (23) ...	17·7 % (23)

TABLE II.—COMPARISON OF SPUTUM RESULTS.

1. *Results of Treatment of 764 Consecutive Unselected (T.B. +) Cases on Sanatorium Methods alone.*

Lost T.B. whilst in the Sanatorium:—

Group 1 ...	43·1 per cent.
Group 2 ...	17·8 „
Group 3 ...	6·6 „

All cases together... 20·5 „

2. *Results of Treatment of 172 Consecutive Unselected (T.B. +) Cases, of which 64·5 per cent. (111) received Tuberculin.*

Lost T.B. whilst in the Sanatorium:—

Group 1 ...	49·6 per cent.
Group 2 ...	25·6 „
Group 3 ...	8·3 „

All cases together... 25·5 „

3. *Results of Treatment of 130 Selected (T.B. +) Cases Treated with Tuberculin.*

Lost T.B. whilst in the Sanatorium:—

Group 1 ...	59·0 per cent.
Group 2 ...	33·3 „
Group 3 ...	7·4 „

All cases together... 32·3 „

Admitting the difference in the total number of cases dealt with, the records for all cases during the pre-tuberculin years, and for a period of 14 months, during which tuberculin was largely used, are strikingly similar. They indicate that whilst the use of tuberculin has had no appreciable effect upon the general results, as regards the loss of bacilli there has been an appreciable difference, 5 per cent. more patients having been discharged free from bacilli than in former years. It is noticeable, too, that the greatest improvement is seen in the group of moderately advanced cases, the figures for loss of bacilli having risen from 17·8 per cent. to 25·6 per cent., a significant increase, since this group includes the majority of the patients.

An Interim Opinion as to the Value of Tuberculin.

It is impossible to give anything like a final opinion as to the value of tuberculin on the strength of our present experience. Moreover, an interim opinion is necessarily limited to the value

of tuberculin when administered by the method popularised largely by the work of Bandelier and Roepke, which, as the one in most general use, was selected for the first trial. We are now using the method recommended by Trudeau and Sahli, amongst others, by which considerably smaller doses are given, thereby securing much greater immunity from the risk of provoking reactions.

Our experience as yet has shown that in tuberculin we have not a remedial agent which is to revolutionise either our sanatorium results or our conception of the outlook for the average consumptive. Tuberculin is not a cure in the ordinary sense of the term, and no immediate or striking results are to be expected from it, even with the most favourable cases. The good effect of tuberculin is at the best exerted almost imperceptibly and over a long period, the slowness of its action being such that it is often difficult to determine as regards patients treated under the most favourable and hygienic conditions how much, if any, of the improvement that takes place is due to its use.

As employed at the Sanatorium during the first 18 months of the observations on tuberculin, it appeared to exercise a favourable influence in the treatment of a certain proportion—some 25 to 30 per cent.—of the cases admitted to the Sanatorium. For a fair number of those patients who can take steadily increasing doses of tuberculin without reactions it is a useful addition to the other means employed in sanatorium practice. This favourable influence is to be recognised chiefly in the more rapid disappearance of bacilli. As to the kind of case in which we may expect to find tuberculin of assistance, our experience is that it is a patient with a good outlook, who has rapidly responded to general hygienic measures, and who has shown evidence of constitutional vigour and recuperative power. Already improving, the addition of tuberculin in the treatment of a good many of such cases seems to expedite the full establishment of convalescence.

In a considerable number of cases tuberculin, so far as we can judge from immediate clinical results, has no obvious effect. The patient is gradually made tolerant to tuberculin, but this is the only objective indication of its action. Further, in a certain proportion of cases tuberculin is more than a negative agent; it is positively prejudicial. We have received no encouragement in the treatment of febrile cases with tuberculin, and have quite failed to obtain confirmatory evidence of the antipyretic value which some observers have claimed for it. Tuberculin cannot be looked upon as a means whereby an unfavourable case can be converted into a favourable one, or as likely to turn the scale in the patient's favour when his progress is hesitating or definitely retrogressive. More often than not it will do harm.

It follows, then, that the administration of tuberculin is quite unsuitable as a routine method of treatment for all cases of pulmonary tuberculosis, and that its indiscriminate and careless use on a large scale can only end in disasters.

Commentary.

It is a matter of opinion how far our experience at the Sanatorium helps us in the solution of the larger issue—namely, the therapeutic value of tuberculin. It is generally stated that in order to obtain the full advantage the process of immunisation by tuberculin inoculations should extend over a very long period, at least a year or more. It is for this reason that

dispensaries, and sanatoria working in connexion with such institutions, may be expected to attain a greater measure of success than sanatoria working single-handed. So far as our work at King Edward VII. Sanatorium is concerned, there has been no such coöperation, and with but few exceptions the patient's course of tuberculin has terminated with his discharge from the Sanatorium.

The question of the continuance of tuberculin treatment by patients after their discharge from the Sanatorium is one of considerable difficulty. It is at least very probable that in many cases it would be to the advantage of the patient if his course of tuberculin, already of some four months' duration, could be continued for a very considerable period on his return home. At the present time it is impossible in most cases satisfactorily to arrange for this, for, to judge by our experience, the medical profession generally in this country is not yet sufficiently versed in tuberculin administration to warrant their undertaking this treatment with any confidence. Further, in my capacity of examiner of candidates for admission to the Sanatorium I continually see most unfortunate results of tuberculin treatment. It is true that these bad results are for the most part the outcome, seemingly, of what I should consider to be a faulty method of tuberculin administration. At the same time, there is reason to believe that the methods adopted represent a conception of tuberculin treatment which is widely held by the profession at the present time. Personally I should like to see the trial of tuberculin upon a large scale, and in respect to the patients at King Edward VII. Sanatorium should like to arrange for their tuberculin treatment after their discharge, since the results of such observations could not fail to provide most valuable information. I do not think, however, that this extended experiment is justified unless a method of treatment is adopted which is absolutely free of risk to the patient. The first essential is to be sure that the treatment will do no harm. Herein to my mind lies the crux of the tuberculin problem at the moment.

With respect to the Administration of Tuberculin.

The administration of tuberculin centres round the question of reactions. Is it a serious responsibility to provoke a reaction, or is a reaction nothing worse than a hindrance in the course of immunisation, a transient and harmless episode? Again, is it a simple matter to give a full course of inoculations without producing febrile disturbances, or is it a task of considerable difficulty, amounting in many cases to an impossibility? It would seem remarkable that upon such an essential point as the safety of producing a reaction there should be such a divergence of opinion.

Our Experience at the Sanatorium.

Reactionless courses.—The evidence is afforded by the records of 40 patients, who lost their tubercle bacilli, and who, whilst undergoing tuberculin treatment, followed the ordinary routine of sanatorium treatment and were fully restored to general health and capacity for work.

We naturally turn to the records of our most successfully treated cases to note to what extent their tuberculin courses were reactionless or otherwise; and it is very significant that without exception these cases, 40 in number, which were thus

successfully treated on ordinary sanatorium lines, plus tuberculin, had reactionless courses, and that no one case which was troublesome to immunise on account of reactions was successful, as judged by the loss of bacilli. One factor, then, which these successful cases all had in common was a capacity to take increasing doses of tuberculin without reactions; their treatment in consequence presented no difficulty, and in respect of exercise they were able to follow the same treatment as has always been prescribed to favourable cases at the Sanatorium. These 40 patients, in short, were all of a very favourable clinical type; they represented 30 per cent. of the cases selected as being suitable for tuberculin treatment. Although complete recovery, with loss of bacilli, is compatible with a reactionless course of tuberculin when given at the same time as ordinary sanatorium treatment, it is by no means certain that a prolonged reactionless course of treatment will result in any obvious success. On the contrary, many of our cases took tuberculin just as well as the 40 cases just considered, over periods, for example, of 30, 40, and 50 weeks and more, but with no apparent benefit. That is to say, their progress was identical with the progress made by non-tuberculin treated cases which do not lose their bacilli. There is one difference only, in that the tuberculin treated were rendered tolerant to considerable doses of tuberculin.

Tuberculin Courses Marked by Reactions.

I have been able to extract from our records sufficient evidence to prove conclusively that reactions are a source of danger; fortunately it is not considerable, for our practice has been to discontinue tuberculin so soon as it is evident that it cannot be given without risk. In brief, I have observed the occurrence of increased activity of the disease, definite extension of the area of disease, the development of acute pleurisy with effusion, and in one case of pneumothorax following upon slight reactions. Apart from these more serious effects, I have seen many cases in which favourable progress was retarded by occasional slight reactions or by a slight degree of malaise, unaccompanied by definite febrile disturbance, consequent upon tuberculin inoculations. What has impressed me even more forcibly of the grave dangers of reactions are the results of treatment marked by repeated febrile disturbances, which continually come under my notice when examining candidates for admission to the Sanatorium. During the past 12 months I have seen 14 patients who, beyond all doubt, had been seriously injured by inoculations of tuberculin, and in many of these, unfortunately, the damage was of an irremediable nature.

I would urge most strongly that safety in tuberculin treatment lies in the strict avoidance of reactions, and in my opinion unless this is realised the general use of tuberculin throughout the country will prejudice the prospects of the average consumptive patient.

Bandelier and Roepke are of the opinion that if the reacting temperature is not greater than 100.4° F. it is unnecessary to decrease the dose. Many observers in their practice are bolder than this. I entirely disagree with this attitude towards reactions. Sahli¹ has much more nearly expressed my views in the following words: "One is not justified in provoking febrile reactions, and all other manifest toxic actions must be avoided.

A rise of 4 to 5-tenths of a degree F. must be considered as a febrile reaction, if the time of its occurrence clearly shows that it is the result of an injection."

Our own records show that very often reactions to 100° F. do no obvious harm, but it is not to the point. So long as there is no evidence to prove that they are of any benefit, and considerable evidence to show that the intensity of reactions cannot be controlled, and at any time they may do great harm, there can be no room even for discussion as to what is the correct practice.

Tuberculin as an Aid in Diagnosis of Pulmonary Tuberculosis.

It is now generally recognised that the production of a local reaction at the seat of inoculation and the raising of the temperature as the result of a tuberculin injection afford no useful information. These results merely indicate that infection by tuberculosis has occurred at some time, but do not help us to determine whether or not tuberculous disease exists, and should it exist, whether it is active, quiescent, arrested, or obsolete. These facts are not sufficiently recognised. On the other hand, the absence of any reaction following a series of diagnostic inoculations excludes the existence of tuberculous disease, and the occurrence of a focal reaction in a suspected organ—for instance, in the case of the lung the development or increase of adventitious sounds—warrants a positive diagnosis. Tuberculin for diagnostic purposes, therefore, has a definite though somewhat restricted value.

In conclusion, I would express the opinion that it is impossible not to look upon tuberculin sympathetically, for as a means of treatment it at least rests upon a scientific basis. Wholesale condemnation and extravagant praise of tuberculin as a means of treatment of pulmonary tuberculosis are alike unwarranted. What we now require is more work, accurately observed and carefully recorded, and more of the scientific and critical spirit in our judgments.

Midhurst.

HUNTERIAN SOCIETY.—At the next meeting of this society on Wednesday, Jan. 13th, at 9 P.M., in the Barbers' Hall, Monkwell-street, E.C., Mr. Donald Armour will deliver the second Hunterian Society's lecture on Surgical Experiences during the Present War. All members of the medical profession are invited.

LITERARY INTELLIGENCE.—As usual, the new issue of the British Pharmacopœia will be accompanied by the publication of several books which are based upon, and supplement, the information contained in the official work. In this connexion we draw attention to Messrs. J. and A. Churchill's announcements: "Materia Medica," fourteenth edition, by Dr. W. Hale White, physician to Guy's Hospital. "The Book of Prescriptions," tenth edition, by Mr. E. W. Lucas, a member of the British Pharmacopœia Reference Committee. "The Book of Pharmacopœias," by Mr. E. W. Lucas and Mr. H. B. Stevens. This is a new book containing about 5000 formulas, British and foreign, arranged on a comparative system.—Mr. H. K. Lewis, in announcing for early publication the new (sixteenth) edition of the Extra Pharmacopœia, has issued a pamphlet describing the special features of the two volumes into which this work is now divided. The new edition has been revised in conformity with the British Pharmacopœia, 1914, and a synopsis of the more important changes has been provided.—Messrs. Smith, Elder and Co. announce for publication "The Early Diagnosis of Heart Failure, and other Essays on the Heart and Circulation," by Dr. T. Stacey Wilson, senior physician to the General Hospital, Birmingham. The volume is illustrated by over 130 original diagrams.

¹ Tuberkulin Behandlung und Tuberkulose Immunität.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF SUPERNUMERARY TOES.

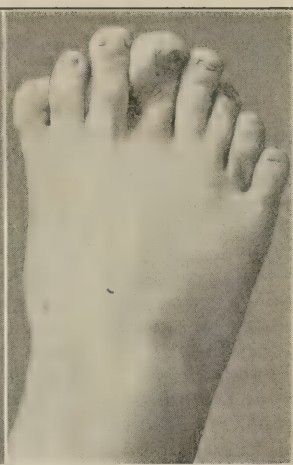
By WALTER FALLA, M.R.C.S. ENG., L.R.C.P. LOND.

A FEMALE patient, aged 22, recently consulted me for an interesting and unusual deformity of her right foot, which caused her considerable inconvenience in walking owing to the overlapping of some of the toes. The left foot was normal, but the right one was considerably broader and was provided with eight fully developed toes, three of which were on one side of the big toe and four on the other, and each one articulated with a separate metatarsal bone. Owing to the rarity of this malformation I had the foot photographed. Fig. 1

FIG. 1.



FIG. 2.



shows the foot in its natural position, with the toes overlapping each other, and Fig. 2 shows the toes spread out. I amputated at the metatarsal joints the two outer toes and the one next to the big toe on the left, the result being that the patient can now walk without the slightest discomfort. There is no family history of any such deformity, although the patient has several brothers and sisters. Jersey.

NOTE ON A CASE OF GOUNDOU.

By R. SEHEULT, M.D. EDIN.,
RESIDENT SURGEON, COLONIAL HOSPITAL, TRINIDAD, B.W.I.

THIS singular and obscure condition, which is characterised by the formation of hard, smooth, symmetrical tumours at the side of the nose similar to exostoses, occurred in a little negro girl who came under my notice in February, 1913; she was born in Tobago in 1902, and arrived in Trinidad about eight years ago with her mother, who gave the following history. In 1910 she noticed a small swelling on each side of the child's nose; the swellings were hard and painless, and increased slowly in size until about two years ago, when they appeared to become stationary; the child complained occasionally of slight headache and of a feeling of obstruction in the nostrils; there was no nasal discharge. No history of yaws

or syphilis could be elicited. The mother had had nine children, all healthy. When the child came under my observation the swellings were fairly well marked; they were hard, smooth, and dome-shaped, standing off the surface about $\frac{1}{4}$ inch; the skin overlying the growths was natural and freely movable. Examination of the nares and mouth revealed nothing abnormal, and the presence of these swellings did not appear to cause any discomfort to the child. It may be of interest to note here that both tibiae were distinctly thickened, and that the mother stated there was a case of yaws in her house when the child was two years of age.

This is the only case of goundou, or what appears to me to be goundou, I have met with during the 20 years I have been connected with the hospitals of the colony, and I can find no previous record of the occurrence of this affection in the island. The condition is reported to be fairly common in West Africa, but its etiology remains in obscurity. Some affirm that the morbid process begins during or soon after an attack of yaws, whilst others maintain that it is started by the larvæ of some insect which find their way into the nostrils; others, again, are of opinion that the condition is *sui generis*. Dr. Albert J. Chalmers has published in THE LANCET a report of six cases of this disease under the name of "Henpuye."¹ Dr. Henry Strachan² has reported an instance of this strange disease in a Jamaica negro child, and suggests that it may be an example of atavism referable to some tribal peculiarity of the original West African stock. In my case I was unable to elicit any history of the larval invasion of the nostrils, nor was there any clear evidence or manifestation of yaws—a disease, however, which was extremely common a few years ago and is still prevalent in Tobago, where the child was born and lived during three years.

A CASE OF ENLARGED THYMUS AND ATELECTASIS.

By J. C. MCWALTER, M.D. DURH., LL.D. N.U.I.,
EXAMINER IN MEDICAL JURISPRUDENCE AND DEPUTY GOVERNOR
OF THE APOTHECARIES' HALL, IRELAND.

THE charge of "overlying" made against mothers whose infants are found dead in bed and the sudden deaths which unexpectedly occur during operative procedure have given rise to a comfortable theory of the status lymphaticus which supersedes or supplements the older theory of "thymic asthma" as a cause of otherwise inexplicable death.

In the present state of our knowledge it seems a duty to record the particulars of any case where an affection of the thymus gland may have been the cause of death. A short time since the infant of a woman whom I had been attending was found dead in the bed. The police suspected overlying or negligence, and an inquest was held. At the post-mortem examination the body was found to be well nourished, weighing 12½ lb., the age being 3 months. There was uncurdled milk still present in the stomach, and all the organs appeared to be healthy, but the thymus gland seemed enlarged—being bigger than the heart, whilst both lungs were of a somewhat purplish and collapsed atelectasoid condition.

I attributed the death to asphyxia, probably aggravated by the enlarged state of the thymus gland. It is doubtful if this conclusion was really

¹ THE LANCET, Jan. 6th, 1900, p. 20.

² Brit. Med. Jour., Jan. 27th, 1894.

correct, as syncope rather than asphyxia causes death in cases of large thymus. On the other hand, I found nothing that could safely be called status lymphaticus, nor met evidence of that fine capillary bronchitis which Paltauf says is often the cause of death in such cases. This case seemed to show a connexion between an enlarged thymus and an undeveloped shrunken condition of both lungs—almost atelectasis.

Dublin.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Dec. 11th, 1914, Mr. T. H. KELLOCK, the President, being in the chair.

Dr. F. J. POYNTON showed a case of ? Aortic Disease, the interest of which lay in the entire absence of any history of heart disease or cause for heart disease except tonsillitis, and in the exact interpretation of the physical signs. The patient, a boy aged 5 years, had been sent up to hospital by a school medical officer for heart disease. For two years the mother had noticed that the child soon got tired and breathless on exertion. There was no history of rheumatism in the child or the parents; also no fever. The tonsils were very large and almost meeting. The pulse was somewhat irregular, 84, and strikingly small in volume. The heart showed no apparent enlargement, and the impulse was not forcible. Apex: First sound short, and systolic murmur. Aortic cartilage: Rasping systolic murmur conducted upward and outward. There was no thrill over its maximum. This murmur, traced towards the apex, got fainter, and then the apical murmur was heard increasing in intensity to the apex. It would seem that these were two different systolic murmurs. The basal murmur could be heard at the pulmonary base, but was fainter there than in the aortic region.

Dr. J. L. BUNCH showed a child with Nine Patches of Morphaea. The patient, a girl aged 11 years, had developed the first lesion a few weeks previously just below the left iliac crest. It had appeared as a dense yellowish-white small patch with no suspicion of redness or coloured border. The outline was sharp, and the skin over it was distinctly harder than the surrounding healthy skin. Eight other similar but smaller patches had since appeared on the chest, back, and shoulders. The face was free. There was no evidence of peripheral neuritis or ganglionic lesion.

Dr. BUNCH also showed a case of Ichthyosis in a child. The disease had been present since birth, and the child was now 3 years old. The extensor surfaces were most affected, but the flexor aspects and the face were also involved. The epidermis was thickened and pigmented, the surface was covered with a coarse scalliness, and there was pronounced follicular keratosis. Subjective symptoms were practically absent.

Dr. G. A. SUTHERLAND showed a case of Myatonia Congenita with Dilatation of the Colon. The patient was a male, aged 2 years, who had been admitted for an abdominal swelling; the abdomen had been noticed to be very large. The bowels were usually constipated; recently the motions had been loose, scanty, and offensive. A large swelling occupied the right side of the abdomen and extended into the iliac region on the left side; apparently faecal. The anal orifice was very small and tight. X rays showed great dilatation of the colon. The abdominal mass was removed by enemata, &c., and the sphincter ani was forcibly dilated. Great improvement as regards the action of the bowels and size of the abdomen resulted. The child could sit up, but could not stand or pull himself into the erect posture. The muscles were small and markedly hypotonic; the joints were very flaccid. The knee-jerks were absent. There was no marked rickets. There seemed to be some mental backwardness.

Dr. ROBERT HUTCHISON showed a case of Hypertrophy of the Gums. The patient, a boy aged 5 years, had had enlarged gums all his life, which now made it impossible for him to shut his mouth properly. The gums were greatly hypertrophied, the teeth being almost buried in them. Pus could be squeezed out from around some of the teeth. The boy seemed otherwise in good health.

Mr. PHILIP TURNER showed a case of Pulsating Tumour of the Scalp. The patient, a girl aged 18 years, had had for the past nine years a pulsating swelling of the scalp. This appeared shortly after a fall in which she struck her head against a concrete floor. She was not unconscious after the fall, and there were no symptoms of concussion and no open wound of the scalp. The tumour had caused no symptoms, but had increased slightly in size. Three or four months ago the skin over the swelling ulcerated and became very septic, but there was no hæmorrhage; as the result of treatment the ulceration soon began to heal. There was now a soft, pulsating swelling occupying the occipital region and extending nearly to the vertex. An X ray examination showed no opening in the bone, though the surface appeared irregular and grooved.

Dr. J. D. ROLLESTON showed a specimen of Cerebral Embolism in Diphtheria from a girl, aged 8 years, admitted to hospital on Oct. 24th with severe faucial and nasal diphtheria on the third day of the disease. Large doses of anti-toxin were given, and the throat became clean on the 28th, but the same day the heart, hitherto normal, showed some dilatation and weakness of the first sound. The voice became nasal on the 30th. At 11.15 A.M. on Nov. 7th she retched, the respirations became rapid, the colour cyanosed, and a convulsive movement of the right arm and loss of consciousness ensued. Double ankle clonus and double extensor response were obtained. Both abdominal reflexes were lost, but the corneal reflex, though absent on the right, was active on the left side. A cardiogram showed premature ventricular contractions. The pulse was 115. On Nov. 8th the pulse was 160, and during short paroxysms rose to 220. The specimen showed embolism of the basilar artery, of the superior cerebellar arteries, and to a greater or less extent of all the arteries entering into the formation of the circle of Willis—viz., the posterior cerebral, posterior communicating, internal carotid, anterior cerebral, and middle cerebral arteries. The lesions were much more marked on the right than on the left side. An ante-mortem clot was found in the left ventricle and a small infarct in the left kidney.

Dr. E. B. GUNSON showed a specimen of Pericarditis in Scarlet Fever. The patient, a girl aged 15 years, was admitted to hospital suffering from scarlet fever on the thirtieth day of disease. She had never had rheumatic fever, but had had occasional "growing pains." On admission the temperature was subnormal. The patient was pale. The pulse was regular, with a rate of about 100 per minute. The heart was not enlarged. In the mitral area there was a short, sharp first sound, followed by a loud, rough systolic murmur, conducted to the axilla. Endocarditis was diagnosed, and the patient was kept in bed. The temperature remained subnormal until the thirty-fifth day, when it rose to 101° F. Slight pyrexia persisted. On the thirty-eighth day the pulse became irregular, owing to each alternate beat being due to a premature contraction. The arrhythmia persisted for two days only. On the fortieth day pericarditis developed, accompanied by arthritis. Death occurred on the forty-fourth day. Post mortem the parietal and visceral layers of the pericardium were completely but loosely adherent by recent fibrinous exudate. When the layers were separated and the exudate was detached numerous small subepicardial hæmorrhages were disclosed. The heart muscle was pale. The cusps of the mitral and tricuspid valves were thickened, and there were some recent vegetations on the mitral valve. The left auricle presented a patch of mural endocarditis. There were a few small patches of atheroma at the commencement of the aorta. Microscopically the left auricle showed thickening of the endocardium, with areas of commencing necrosis; myocarditis; organising pericardial exudate containing a number of irregularly dilated capillaries. The right auricular muscle presented a similar appearance; the endocardium was healthy. The left ventricle showed acute myocarditis of mild degree.

Dr. E. G. L. GOFFE showed a specimen of Pericarditis in Scarlet Fever from a girl aged 9 years. She had been admitted to hospital on Oct. 9th with scarlet fever. There was a previous history of rheumatism. On admission the symptoms of scarlet fever were well marked and there were choreiform movements of the face, right arm, and right leg. On Oct. 26th she developed a pericardial rub at the base and a presystolic and systolic apical bruit. Death took place on Nov. 2nd. The specimen showed the parietal and visceral layers of the pericardium completely covered with recent lymph, small vegetations in the mitral and aortic valves, and some hypertrophy of the myocardium.

Dr. GOFFE also showed a specimen of Perforation of the Arch of the Aorta by a Safety Pin Impacted in the Oesophagus from an infant, aged 10 months, who had been admitted to the North-Eastern Hospital on Feb. 18th, 1912, certified to be suffering from scarlet fever. As the diagnosis of scarlet fever was not confirmed on admission the child was sent to an isolation ward. It was seen again late the same evening, when the nurse reported that it was fretful and had vomited a little milk after each feed. At 12.30 P.M. next day, Feb. 19th, the child vomited after a feed of milk and brought up a quantity of blood and died. The oesophagus, larynx, and trachea with the arch of the aorta and the large vessels arising from it were shown, with a brass safety pin *in situ* as found post mortem. The oesophagus had been opened at the back. The pin was open with the open end downwards. Viewing the oesophagus from behind, the catch half of the pin was seen in the oesophagus; the other half, having passed through the oesophagus point downwards and forwards, was not seen. The pin portion passed to the left of the trachea on a level with its bifurcation. The oesophagus was perforated on its anterior surface about 2 inches from its upper extremity; the pin half having passed completely through the wall of the oesophagus was in a cavity about $\frac{1}{4}$ inch in diameter between the gullet and the aorta. The walls of the cavity were thickened. Viewing the specimen from the front there was seen a perforation in the wall of the aorta, with the point of the pin just appearing through the hole in the interior of the artery. The aorta was perforated about $\frac{1}{2}$ inch below the origin of the left subclavian. Death was due to hæmorrhage from the aorta owing to ulceration set up in its walls by the presence of the pin in the tissues between the aorta and gullet. The bleeding was into the oesophagus. The stomach was full of blood. There was little blood in the upper part of the small intestines. No blood was found in the large intestines. The heart and blood-vessels were practically empty, and all the tissues were pale and bloodless.

Dr. ERIC PRITCHARD and Dr. C. VIOLET TURNER showed a specimen of Liver Abscess from an infant aged 5 weeks. It had been healthy at birth and jaundiced at 4 days for nearly a fortnight. Its abdomen had always been prominent, but became much more distended five days before admission to hospital. On admission the liver was enlarged down to the umbilicus, and there was œdema of the abdominal walls, back, legs, scrotum, and penis. Death occurred 24 hours after admission. The necropsy showed an abscess of the size of an orange in the right lobe of the liver. No other suppurative focus was found. The pus from the abscess grew bacillus coli and a Gram-negative diplococcus. A culture from the heart's blood grew bacillus coli.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—

A clinical meeting of this society will be held at the West London Hospital on Friday next, Jan. 15th, at 8 P.M., when cases of wounds caused in the war will be shown and discussed by the President, Mr. Aslett Baldwin, Colonel A. Peterkin (deputy principal medical officer, London district), Lieutenant-Colonel Oliver L. Robinson, Mr. C. C. Choyce, Mr. W. McAdam Eccles, and Mr. H. Tyrrell Gray.

DEATH OF A PROMINENT BATH SURGEON.—

Mr. Thomas Davis Ransford, a prominent Bath surgeon, died at his country house in Wiltshire last Sunday, aged 64. The son of the late Surgeon-Major John Ransford, an inspector-general of hospitals, he practised in Bath for a long term of years, and did valuable work at the Royal United Hospital. Resigning in 1909, he was elected consulting surgeon, and has thus been in close association with the institution for nearly a quarter of a century.

Reviews and Notices of Books.

Zoological Philosophy: An Exposition with regard to the Natural History of Animals.

By J. B. LAMARCK. Translated, with an Introduction, by HUGH ELLIOT. London: Macmillan and Co., Limited. 1914. Pp. 410. Price 15s. net.

THE "Philosophie Zoologique" of Jean-Baptiste-Pierre-Antoine de Monet de Lamarck (to give the author's full name, which will not be at all familiar to most of us) is one of the great classics of zoology, largely quoted, but mainly quoted at second hand, and seldom read. There is such an immense gulf between the zoology of to-day and that of the beginning of the last century that even the most learned and encyclopædic author, if writing on the results of investigations, hardly finds it necessary to deal with views framed in compulsory ignorance of the quite fundamental data of modern biology. It is, however, by no means uninteresting to realise what a great deal of truth was arrived at by the acute French philosopher which has been perhaps rediscovered in modern times. For example, in comparing living and lifeless bodies, Lamarck writes that no inorganic body possesses individuality—a view which reminds us of the more accurate dictum of the physiologist Verworn, who dwells upon a similarly expressed and important character of living beings; these are, he says, characterised by indivisibility, or rather undividedness, an expression which embodies the same idea in perhaps clearer terms.

In the main, therefore, the republication in an English dress of the famous philosophical work of Lamarck is a matter of historical interest. To those readers who are not fully informed of the chief theories and data of biology Mr. Hugh Elliot's introduction will be of very great service. This editor has not only fully grasped the general purport of Lamarck's thoughts, but is able to elucidate from the modern point of view his statements of fact. Without this introduction the text of Lamarck would be in many places obscure save to the very well-instructed reader. Mr. Elliot places his pen at once upon a common misinterpretation of the "Philosophie Zoologique" by pointing out that that philosophy had two leading contentions. To most persons Lamarck's insistence upon the inheritance of acquired characters, and the gradual heaping up through this of at first infinitesimal variations, which lead under the influence of the environment to the production of new species, represents his philosophical position in the matter of evolution. But this would be an incomplete and thus misleading idea. For Lamarck prefaced this axiom of his belief by the assertion that an innate power of development tending to "proceed in a straight line" is conferred upon all animals. It is the divergencies from this straight line that are due to the environment acting as already stated. To pursue any criticism of Lamarck's position is obviously impossible in a review; nor would it be of great use, if we may rather cynically agree with Tolstoy, that the active life of any theory is no more than ten years. In the last published reflection upon the general problems of evolution Professor Dendy remarked (in addressing the British Association), "Many years of patient work are still needed before we can hope to solve even approximately the problem of organic evolution." To this not

necessarily depressing statement every zoologist will subscribe.

It is most interesting, when revising our knowledge of the general aspect of Lamarck's great contribution to biological theory, to find, as Mr. Elliot points out, that nowhere in the treatise is there a hint that its author had got even the slightest inkling of "Natural Selection." It is occasionally, and even with a desire to depreciate, suggested that Darwin obtained much light from reading the "Philosophie Zoologique." As to theory, that is quite plain; as to fact, it must be borne in mind that Lamarck, writing at that epoch when palæontology was in its infancy, embryology hardly known, and the whole of histology a secret for the future, could hardly be regarded as having accumulated a store of facts for the future deliver. Apart from the general purpose of his book, Lamarck dealt necessarily or parenthetically with a vast number of interesting minor points. It was he who first divided the animal world into vertebrates and invertebrates, a division which has lasted for long. It has not, of course, escaped Mr. Elliot that this classificatory generalisation, though "for long time regarded as final," is not now any longer possible; nor has he failed to note that Aristotle's division into "blood-forming" and "bloodless" animals is virtually the division of Lamarck, though based upon a different, and incorrect, structural feature. One of the most singular doctrines incidentally held by Lamarck was that there are virtually no extinct forms; that all creatures evolved continue to live and progress. It is the more singular since it seems to contradict the great writer's fundamental doctrines. For if the environment can profoundly change, it would seem a corollary that it could produce the final change of all and extinguish. But it must be again recalled that palæontology had advanced but a little way in Lamarck's time, while the exploration of the land, and especially of the sea, was only just beginning. Hence the strong possibility, again and again proved to be partially true, that forms hitherto supposed to be missing would eventually be discovered.

We commend the reading of Lamarck's "Zoological Philosophy" to all biologists, for the author's name is in many mouths, while his actual teaching appears to be forgotten. And the wise reader will season his reading with the valuable hints given by Mr. Elliot in his admirable and comprehensive introductory remarks.

Studies Concerning Glycosuria and Diabetes.

By FREDERICK M. ALLEN, A.B., M.D. Harvard University Press. Pp. 1179. Price 38s. net.

THIS large work represents three years of research in the Laboratory of Preventive Medicine and Hygiene of the Harvard Medical School. During this time the author has carried out most exhaustive investigations concerning the physiology of sugar and the origin and nature of diabetes, and has produced a satisfactory reproduction of human diabetes in laboratory animals, and experimented with various methods for modifying the disease experimentally produced. In consequence he holds that the cure of diabetes is now a feasible experimental problem. He deals first of all with glycæmia, glycosuria, and glucose tolerance, and details his experiments with carbohydrates in general administered in different ways, and as a result arrives at the conclusion that the presence of long-continued excess

of assimilable or non-assimilable sugar in the normal organism does not produce diabetes or any of the symptoms or complications of diabetes which have been attributed to hyperglycæmia. His experiments with injections of dextrose produced chiefly negative results that tended to show that the obesity sometimes associated with diabetes was not due to hyperglycæmia. He has not noted anything like a specific toxic effect of sugar, and has found that the only field of usefulness for dextrose injections was to exert a valuable nutritive and strengthening effect in states of weakness.

The author then deals with the diuretic action of sugar and discusses fully the amboceptor hypothesis. A chapter is devoted to the oat cure, including von Noorden's original views on the matter, and the author touches upon the widely different tendencies of different foods to produce glycosuria without regard to the carbohydrate content of these foods. As a result of the experimental production of operative diabetes on various animals he has reached the conclusion that the normal pancreas is necessary for normal carbohydrate metabolism, in view of one of its internal functions, and he holds that the complications of diabetes, at any rate, such as defective wound-healing and diminished resistance to infection, albuminuria, &c., as far as he observed in diabetic dogs, are not due to the sugar content of the blood or urine. Diabetes insipidus, he suggests, ought to be classed with the disorders of internal secretion.

A most important chapter is on the nervous system in glycosuria, in which the author puts forth the hypothesis that human diabetes is in most cases a functional disease of the nervous system, and holds that the average diabetic patient may have a pancreas which does its normal work if relieved of abnormal influences which interfere with it, though he holds that diabetes is solely and invariably a disease of the pancreas. Such a hypothesis, he thinks, introduces the hope of therapeutic mastery over the disease. Under the heading of "Miscellaneous Therapy" he deals with many lines of treatment.

In Chapter XIX. Dr. Allen discusses the polyglandular doctrine, and, though recognising a certain degree of interaction and interdependence between the different organs of the body, he nevertheless disagrees with the hypothesis that diabetes consists in a loss of balance between antagonistic glands of internal secretion. In a chapter on anatomy he discusses fully the islands of Langerhans, and reproduces at the end of the book many of the histological plates prepared from sections by Dr. F. B. Mallory. He thinks that the weight of evidence tends to confirm the internal secretory function of the islets, the permanent connexion of at least a large proportion of islets with the ducts, and the possibility of new formation of islets in post-embryonic life, but tends to contradict the doctrine of transformations between fully formed acini and islets.

Finally, the author deals with the relations of internal and external secretions of the pancreas and the many experiments that he has carried out on this question, and, in conclusion, he offers a suggestive experimental value of duct ligation in varying the diabetes in dogs, and certainly it appears to have had some good results in these animals. Briefly, he sums up his results as follows: "Allowing for a certain number of purely organic cases, the sequence of causation in the average case of human diabetes is presumed to be the following:

nervous disorder, with impaired function of the islands of Langerhans which leads to a deficiency of pancreatic amboceptor, and this results in glycosuria and other symptoms." He accentuates the fact that a functional disorder must be curable, and if such be established by other observers the existing hopelessness regarding this disease should be removed.

We have been able only briefly to touch upon the scope of this work, and the numerous experiments carried out for so many years well deserve most careful study. But we are convinced that many good and original ideas are here incorporated, and the entire work will serve to advance the study of this disease. There is an appendix of methods, together with protocols of the many experiments, and an extensive bibliography containing nearly 2000 references.

Essentials of Physiology.

By F. A. BAINBRIDGE, M.D. Cantab., D.Sc., Professor of Physiology, University of Durham; and J. ACWORTH MENZIES, M.D. Edin., Lecturer on Physiology, University of Durham College of Medicine. With 134 illustrations, some coloured. London: Longmans, Green, and Co. 1914. Pp. 434. Price 10s. 6d. net.

THIS publication makes the fourth of the series of "Essentials" issued by the same publishers. In the text there is no indication as to the respective parts contributed by the two authors. As far as possible histological details and descriptions of chemical and experimental methods are excluded. Only the facts and principles of physiology are considered, and in the main great accuracy is shown, as well as judgment in selecting what to notice. But in a future edition we look to see improvements.

After three pages of introductory matter and about ten on the chemistry of the body, the reader passes on to muscle, nerve fibres, the central nervous system, and the organs of sense. In the tracing showing a "simple muscle twitch" the latent period is obviously much too long. It is hardly correct to say that when a muscle passes into rigor mortis it loses its extensibility; nor is it quite accurate to state that "the nerve fibres form the medium by which the various structures of the body are brought into communication with the central nervous system." What about chemical means? In the short statement as to the chief chemical constituents of nerve fibres, water seems to find no place. In describing the conduction of a "disturbance" in a nerve fibre propagated in both directions it might be well to state what kind of a nerve should be used when the galvanometric method is employed. About 70 pages are given to the nervous system, 50 to the organs of sense, and about 20 to blood, and nearly 70 to the vascular mechanism. We are glad to see an account of the arrangement and uses of the "heart-lung preparation" of Knowlton and Starling. Just over 40 pages suffice for the respiratory system. The account of the gases of the blood is concise, as is that of the regulation of the respiratory movements. There are several useful illustrations. Some of Barcroft's recent work on the respiratory function of the blood is incorporated.

The digestive system is dealt with in 50 pages, the subject being introduced by a short account of enzymes. The treatment follows the usual lines. Metabolism comes next, and is set forth in 26 pages, while about five pages are given to animal heat.

About nine pages are given to food and diet. We are glad to see that Chittenden's estimate of the protein daily intake is regarded as much too low, so that the actual amount of protein required—about 110 to 120 grammes—is much higher than that taken in his experiments. Vitamines are referred to, and the disease produced in fowls by feeding them with polished rice is also noted, but "polyneuritis" as such is not mentioned; at least, we failed to find it. The introduction of an illustration of this condition in the fowl or pigeon and its cure by yeast would have been useful. It is stated that "gelatine cannot replace other proteins in a dietary." About 20 pages suffice for the urinary system, and of these seven are given to the urine. The authors conclude that the glomeruli simply filter off from the blood a fluid identical in composition with blood plasma, excluding protein, while the tubules, besides secreting certain urinary constituents, exert a selective power of absorption whereby certain substances, such as sodium chloride, can be retained when required. A short account is given of the ductless glands. Seven pages suffice for reproduction. A considerable number of the illustrations are taken from Starling's "Principles of Physiology" and other text-books. In all cases the sources are duly acknowledged.

To us it seems that these "Essentials" are good so far as they go, but being "essentials" the reader must not look for many details. They are intended to meet the requirements of the medical student preparing for a "pass examination." There are very varying standards for a "pass," and for some boards at least it would be well for the candidate to supplement the "essentials" with additional matter from larger text-books.

Boy Life and Labour: the Manufacture of Inefficiency.

By ARNOLD FREEMAN, M.A. With Preface by M. E. SADLER, LL.D., C.B. London: P. S. King and Co. 1914. Pp. 252. Price 3s. 6d. net.

AN extremely interesting inquiry has been made into the conditions of juvenile employment in Birmingham by Mr. Arnold Freeman, who has recently published his results. Mr. Freeman conducted his investigations at the request of the education committee of the Birmingham city council. His special purpose was to ascertain the causes of deterioration in character and in earning capacity in many boys who fail to pass at once into the higher grades of labour, but escape the special temptations of street trading and casual employment. He selected from the files of the Labour Exchange every boy of 16 to 17 years of age who had been in four or more situations since leaving school. This selection excluded boys of special merit or with favourable opportunities, on the one hand; and on the other, the nomad, or casual, or street arab. Of 134 boys so traced, it was possible to follow up in detail the careers of 71. An outline of these boys' lives is given, and of the influences that are shaping their future.

As Dr. Sadler, the Vice-Chancellor of the University of Leeds, says in his introduction, Mr. Freeman, following Mr. Charles Booth and Mr. Seebohm Rowntree, has gone straight to life; he discloses the actual experiences of a number of boys during their critical years of development. The result is a volume of very great interest; it is not an impression, but a series of photographs, not

always agreeable, sometimes pathetic. Of the 71 boys, 6, after drifting about for three years, found their way into occupations where they learned skilled work or its equivalent; 44 boys were found to be doing unskilled work, and likely to continue in the ranks of unskilled labour; 21 boys were also doing unskilled work, and were so markedly deficient in mental, moral, or physical capacity—sometimes in all three—as to make it exceedingly probable that they would be rejected for regular employment.

The stories of the boys' lives are given in many cases; it is often pitiful reading; the *lacrime rerum* are there. Sometimes there are redeeming features, as in the boy whose father had committed suicide through drink, and whose mother earns a pittance by mounting brass knobs at a factory. The boy does odd jobs and is apparently destined to sink into the ranks of unskilled employment, but during the coal strike, "in order to get some coal for his mother, he went down to the canal, dived into the icy water, and fetched up lumps of coal from the bottom piece by piece." The influence of the picture palace in the lives of town children is very great; all boys go to the cinema, generally twice a week. Mr. Freeman considers it as unquestionably "the greatest formative influence at the present time in the life of the average working boy." There is not much of a directly vicious nature in this influence, he thinks—and this accords with all we have heard—the boy is on the whole innocently amused, but it initiates him "prematurely into the adult point of view. It merely multiplies and intensifies the boy's stock of common-place ideas without enlarging or ennobling them." On the whole this is a more favourable opinion in regard to these shows than we should have expected. The music-hall performance is condemned for boys.

The remedies proposed for the existing evils in boy life and labour are: absolute prohibition of wage-earning, accompanied by whole-time education, up to 15; reduction of hours of juvenile labour between 15 and 18 to a maximum of (say) 30 per week; compulsory continued education, to be insisted on by the State, the details being settled by the local authority. The reduction in hours would "fall most severely on those firms and occupations that make an illegitimate and parasitic use of boy labour"; but everyone will agree with Mr. Freeman in his opinion that "no firm has a right to use a boy for one season only of the year, or for a few years of his life, and then cast him adrift at the expense of the community."

Bedside Hamatology: an Introduction to the Clinical Study of the So-called Blood Diseases and of Allied Disorders.

By GORDON R. WARD, M.D. Lond. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 394. Price 15s. net.

FROM the title of this book we should rather have expected a short manual dealing with the methods of examination of the blood which can be used at the bedside, without the provision of an organised laboratory. It is actually designed on different lines.

After an introductory chapter on classification and one on the general physiology of the blood-forming organs, about nine pages are devoted to methods of examination of the blood. The succeeding chapters deal in turn with the affections of

blood-forming tissue, such as chloroma and lymphadenoma; with the various anæmias; with disturbances of the blood pigments, such as hæmochromatosis, hæmoglobinæmia, and so forth; with the varieties of leucocytosis; with chlorosis, hæmorrhagic disorders, and leukanæmia. Three pages are devoted to the study of the blood in surgical diagnosis, and 11 to methods of treatment, including transfusion, X rays, arsenic, and iron. The last chapter contains an alphabetical list of diseases with a brief statement of the conditions of the blood respectively found in them. Parasitic diseases of the blood are specially omitted. There are a good many illustrations, showing both clinical appearances and microscopical specimens. Two coloured plates of cyanotic patients are of very indifferent merit.

The volume does not seem to make any very novel contribution to the subject with which it deals.

Surgery, its Principles and Practice. For Students and Practitioners.

By ASTLEY PASTON COOPER ASHURST, A.B., M.D., F.A.C.S., Instructor in Surgery in the University of Pennsylvania, &c. With 7 coloured plates and 1032 illustrations in the text, mostly original. London: Henry Kimpton. 1914. Pp. 1141. Price 28s. net.

THIS is a very successful attempt to provide for the student and practitioner a useful and trustworthy treatise on surgery. It is not too lengthy, and yet it contains practically all that the student should know for most examinations within limitations which are admitted by the author. The author has purposely omitted all reference to the surgery of the eye, the ear, the nose, and the throat. In the preface it is stated that they are "naturally" omitted, though we must confess that we cannot see why these omissions should be "natural," even if convenient. On the whole, we cannot help thinking that it would have been better from the point of view of the student to have included these sections of surgery, for the special text-books on these subjects are generally too lengthy to be easily digested by the student.

We have above used the word successful in speaking of this work, and we are justified in doing so, for the book is clearly written and the author speaks with that amount of dogmatism which is best suited for the instruction of students. It is evidently the product of a capable teacher. The illustrations form a very noteworthy feature of the work, and they are nearly all absolutely original and have been carefully chosen. The coloured plates are especially worthy of mention.

A Text-book of Medical Diagnosis.

By J. M. ANDERS and L. N. BOSTON. Second edition, revised. With 500 illustrations. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 1248. Price 25s. net.

THE first edition of Anders's and Boston's massive text-book of medical diagnosis was designed to "present, consistently with a single-volume text-book, the full modern resources of the art and science of medicine as related to medical diagnostics." The second edition, now before us, has taken two years to prepare, and every effort has been made to bring it fully up to date.

The general arrangement is excellent. A brief introductory section is followed by some 135 pages on diseases of the respiratory system. Next the diseases of the circulatory, digestive, and

urinary systems, acute infectious diseases, animal parasitic diseases, and constitutional diseases are discussed; Dr. T. H. Weisenburg at the end of the book contributes 180 pages dealing with diseases of the nervous system. Under the heading of each disorder considered in these groups of diseases, the arrangement of the information given and the deductions to be drawn from it are equally skilful. Admirable use is made of large-type headings and subheadings, in such a way that the reader's attention is directed to the salient points without delay. The text itself is trustworthy, speaking generally. Full weight is given to the laboratory diagnosis of disease as distinguished from its diagnosis by clinical methods and observations, and illustrative cases are quoted where this has been thought advisable. An interesting example of a mode of infection in pulmonary tuberculosis, oddly enough set down under the heading "Hereditry," may be quoted: "Seven resident physicians in a hospital in Philadelphia developed pulmonary tuberculosis within the course of two years, and investigations made to ascertain the source of such infection disclosed the fact that the coloured cook who prepared the food for the resident staff was suffering from a chronic form of pulmonary tuberculosis, both his saliva and his nasal secretion showing the presence of tubercle bacilli."

The book is well printed, but the authors are often unfortunate in their spelling of classical words—e.g., "bacillus smegmae" (p. 975) for "smegmatis"; "Paragonimus Westermanni" (p. 79) for "Paragonimus westermanni"; "streptothoracosis" (p. 79) probably for "streptotrichosis"; "streptotrichosis" (p. 923) for "streptotrichosis." On p. 3 they introduce a new "portmanteau" word, to adopt Lewis Carroll's term—namely, "corollating," apparently a combination of "correlating" and "corollary." The index is excellent, and so are many of the illustrations; it is questionable, however, whether any good purpose is served by the many photographs of nude women employed to illuminate points of pathological and surface anatomy and scattered throughout the text. The book may be recommended to students and practitioners of medicine.

Indispensable Orthopædics.

By F. CALOT. Translated from the sixth French edition by A. H. ROBINSON, M.D. Durh., M.R.C.S. Eng., and LOUIS NICOLE. With 1250 illustrations and 8 plates. London: Baillière, Tindall, and Cox. 1914. Pp. 1175. Price 21s. net.

It is not quite clear to whom this volume is "indispensable." It consists simply of an account of the methods of the author, and is in no sense a text-book of orthopædics either for the student or for the practitioner. It is translated without any attempt to employ English idiom, is diffuse, and by no means easy to read. As a scientific treatise its value is impaired by absence of any consideration of the detailed pathology of the conditions treated, and of any recognition of varieties of disease. For example, there seems to be no differentiation in the author's mind between cases of tuberculous disease of the knee in which there are local foci of disease discoverable in the bones by means of X rays, and cases in which the disease is purely synovial. As might be expected from Dr. Calot, the descriptions of the technique of work with plaster-of-Paris and with celluloid are full and good, and much attention is paid to

methods of aspiration of abscesses. It is for these details that the work is useful in England. But the view of treatment taken by the author is very circumscribed, personal methods being repeated again and again, and other methods being mentioned mainly to be criticised. There is a good deal of praise of the results of treatment at Berck in general.

The book is well printed and illustrated; its chief merit, as already stated, lies in the descriptions of the author's methods.

LIBRARY TABLE.

First Book of Physiology and Hygiene. By GERTRUDE D. CATHCART, M.B., B.Sc. Glasg., D.P.H. Camb. With 65 illustrations. London: Macmillan and Co., Limited. 1914. Pp. 158. Price 1s. 6d. net.—This is an admirable little text-book for the non-professional student, written with great clarity and freedom from unnecessary technicalities, and yet with noteworthy accuracy. The principles of hygiene and their special application to the common matters of everyday life are dealt with in the physiology of the part to which they pertain; there are, however, special chapters on the hygiene of the skin, hair, and teeth, body heat and clothing, muscular exercise, gymnastics, rest and sleep, and micro-organisms. The author has well succeeded in her attempt to give to the manifold facts of physiology and hygiene a more coherent form by grouping them round certain central ideas which make an appeal to the imagination. Each chapter is followed by a selection of questions set at the Oxford and Cambridge Local Examinations. We can heartily commend this book.

Quantitative Analysis by Electrolysis. By ALEXANDER CLASSEN, with the coöperation of H. CLOEREN. Translated from the thoroughly revised fifth German edition by WILLIAM T. HALL. New York: John Wiley and Sons; London: Chapman and Hall. Pp. 308. Price 10s. 6d. net.—The introduction of electrolytic methods of analysis was due to the authors of this volume, and they have proved to be very valuable to a large body of analytical chemists, but chiefly to those engaged in metallurgical work or in the analysis of metallic salts. The method is not confined, however, to such well-known and easily deposited metals as copper, lead, silver, bismuth, mercury, and zinc, for the list now includes the metals of the alkaline earths, the alkalies, and even the determination of nitric acid in nitrates. Of the greatest assistance in analysis is the electrolytic method applied to the separation of the metals when more than one is present in the solution. The description of this application of the electrolytic method forms a most interesting portion of the work, and more space is devoted to it than any other. The book is a valuable addition to the library of the analyst in general practice.

The Salvarsan Treatment of Syphilis in Private Practice, with some Account of the Modern Methods of Diagnosis. By GEORGE G. S. STOPFORD-TAYLOR, M.D. Durh., M.R.C.S. Eng., and ROBERT WILLIAM MACKENNA, M.A., M.D., B.Ch. Edin., Physicians to the Liverpool Skin Hospital. London: William Heinemann. 1914. Pp. 90. Price 5s. net.—The value of salvarsan is almost universally acknowledged, and its use will undoubtedly spread more widely still. This little work gives an account of the method of injecting salvarsan,

and details a number of cases. We do not, however, think that the authors have sufficiently impressed upon their readers the vital importance of extreme care in the administration of the drug if mishaps are to be avoided. Some very striking illustrations are given of syphilitic lesions before and after the injection of salvarsan. Curiously we have not been able to find in the book any reference to neosalvarsan.

First Stage Hygiene. By ROBERT A. LYSER, M.D., Ch.B. Birm., B.Sc. Lond., D.P.H. Twelfth impression (sixth edition), revised and enlarged. London: W. B. Clive; University Tutorial Press, Limited. 1914. Pp. 288. Price 2s. 6d. net.—Judging from the issue of a sixth edition the author's plan of taking into consideration the various parts of physiology as essential introductions to certain sections of hygiene has succeeded. In addition, he has preserved a logical sequence of both physiological and hygienic facts, which develops the subject in the most intelligible way. As an example we may mention that after describing the phenomenon of respiration he proceeds with a chapter on ventilation. Similarly the chapter on foods precedes that on the digestive system, and so on through the book. This seems to us to be an eminently sound way of teaching hygienic principles, and particularly in the "first stage."

Prothèse Restauratrice Bucco-faciale et Traitement des Fractures des Maxillaires. By Dr. P. MARTINIER and Dr. G. LEMERLE. With 172 illustrations. Paris: Baillière et Fils. 1915. Pp. 360. Price 3 francs.—This handy volume contains a clear account of the various appliances which the dental practitioner is at times called upon to make or have made, and to adopt. Not only is there an account of the mechanical appliances for treating cleft palate and restoring lost portions of the maxillæ, but details are given of the manufacture of an artificial larynx and the more common methods of replacing a lost nose. There is a full account of the different splints for treating fractures of the jaws, some of the methods suggested for dealing with extensive injuries of the maxilla being extremely ingenious. The illustrations are clear. We can cordially recommend the book to the notice of those interested in the subject.

MISCELLANEOUS VOLUMES.

As might have been expected, the war has had its effect in delaying the appearance of some of the books of reference which usually are published at the close of the year. The following reached us too late to include in our last issue for 1914:—

The Medical Who's Who, 1915. Published annually. London: The London and Counties Press Association, Limited. Pp. 1013. Price 10s. 6d. net.—This book now contains 1013 pages as against 812 in that for 1914. The names of all those who have filled in and returned the form sent out to every medical practitioner on the Medical Register are included. The book is, however, at present not a complete medical directory, as many members of the medical profession seem to have refrained from filling in the form, under the misapprehension, probably, that the book constitutes a selected, and therefore invidious, list. This we are assured is not the case. On the other hand, the book contains many social and other extra-professional data not to be found in the ordinary medical directory, which confines itself to information having a solely professional value, and our own view is that some of this information serves no good professional purpose.

Some idea of the field of information covered by *Hazell's Annual, 1915* (London: Hazell, Watson, and Viney. Pp. 592. Price 3s. 6d. net), edited by T. A. Ingram, M.A., LL.D., is indicated by the large and excellent index. The present

issue contains many articles dealing with topics of timely and paramount interest. Some 30 pages are devoted to the war, aviation receives a large amount of attention, the Home Rule question is dealt with, and, indeed, on whatever subject information is desired the searcher is sure to find valuable assistance.—*Whitaker's Almanack, 1915*, by John Whitaker, F.S.A. (London: Whitaker. Pp. 890. Price 2s. 6d.), is such an old friend that praise of its utility would be almost an impertinence. All the well-known features of this publication are maintained in the new edition, and among fresh matter there are articles on topics connected with, or having a bearing upon, the war.—*Whitaker's Peerage, Baronetage, Knightage, and Companionage, 1915* (same publishers. Pp. 867. Price 5s. net), fulfils all the requirements of an indispensable work for the reference shelf. All the promotions and appointments due immediately to the war have been recorded up to as late a date as the exigencies of "going to press" would allow.—*Howe's Classified Directory to the Metropolitan Charities for 1915* (London: Longmans, Green, and Co. Pp. 173. Price 1s.) gives full information of more than 1000 metropolitan charitable institutions, grouped according to classes. An appendix contains a list of provincial charities. It is a useful guide for the benevolent, and we ourselves are grateful for the information which it conveys.

JOURNALS AND MAGAZINES.

The Philippine Journal of Tropical Medicine, Vol. IX., Section B, No. 3.—No fewer than ten original articles appear in this number of the journal, the first being by Dr. Fernando Calderon, who gives some data concerning the Medical Geography of the Philippine Islands. This observer finds that the three preponderating diseases in this region are pulmonary tuberculosis, malaria, and dysentery; after these come beri-beri, intestinal parasites, gastro-enteritis, bronchitis, and broncho-pneumonia. Dr. Otto Schöbl supplies a paper, with illustrations, on the Etiology of Trichomycosis palmellina, a pathological condition of the hair associated with a bacterial infection, found in the Philippines. A contribution to the Bacteriology of Leprosy, with illustrative microphotographs, is made by Dr. John A. Johnston in the form of a preliminary note, in which the author says that at the present stage of his investigation he is quite convinced that the bacillus lepræ is but the acid-fast stage of a markedly pleomorphic streptothrix. Dr. David G. Willets writes on Intestinal Helminthiasis in the Philippine Islands as indicated by examinations of prisoners on admission to the Bilibid prison at Manila; the same author contributes also another short article on Widal reactions among healthy adult Filipinos. Dr. W. A. Musgrave and Dr. A. G. Sison supply a joint paper on Bacillary Dysentery and its Treatment, this being the most prevalent form of the disease in Manila. Experiments on the Cultivation of Rinderpest Virus, in the manner described by Baldrey, are related by Dr. William H. Boynton, of the Veterinary Division of the Manila Bureau of Agriculture, and the same writer also contributes an article, with illustrative plates, on Kidney Worm Infestation of Swine in the Philippines, with special reference to the pathological changes caused by the parasite *Stephanurus dentatus*, which is often found among the native pigs slaughtered for human food. The worms may be located in the fat surrounding the kidneys, or encysted in the kidneys, liver, spleen, or lymphatic glands. Mr. S. F. Light gives a description of another dangerous jelly fish, *Chiropsalmus quadrigatus*, found in Philippine waters. Lastly, Dr. R. B. Gibson, of the Department of Physiology of the University of the Philippines, describes some simple laboratory apparatus, with three figures in the text. A series of short reviews of current medical literature completes a very readable and informative number of the journal.

The Dental Record.—The December issue contains an article by Dr. Rayner Eckermann on the Etiology of Dental Caries, in which he raises objections to current ideas and advances an ingenious theory based upon the phenomenon of osmosis. The author considers that caries may be divided into two principal states—primary caries and secondary caries. The former is deep caries, and grows eccentrically from the pulp, the latter is superficial and grows concentrically to the pulp. He maintains that osmosis takes place between the pulp and certain chemical agents dissolved in the saliva which increase the osmotic pressure of

that fluid. The result of this increased osmotic pressure is to "press the blood out of the pulp through the tubules of the dentine up to the enamel. The plasma spreads itself out under the enamel and presses it outwardly." The paper is interesting if not convincing. There are no demonstrations of facts, and some of the author's statements do not tally with unchallenged clinical observations.—The January issue of this journal contains the first instalment of a paper by Mr. J. F. Colyer on the Injuries of the Jaws and Teeth in Animals. The paper is founded on a museum demonstration given at the Royal College of Surgeons last October, and refers to the specimens in that collection. The author describes cases of fracture of the maxilla and the mandible, as well as fractures involving the zygomatic arch. Amongst the latter a description is given of the skull of a bear in which there was a definite bending of the cranium from the unequal balance of muscular action. Cases of complete dislocation of the teeth and several examples of injury to unerupted teeth are fully described. Sir Arbuthnot Lane contributes a paper on the Mechanics of some of the Bones of the Face. He discusses the subject from a general point of view, refers to the relationship of deformed arches to adenoids, and points out the value of early operation in cases of cleft palate. Mr. F. J. Pearce has a practical paper on the Treatment and Filling of Root Canals, and there is a good review of dental surgery in 1914.

The British Dental Journal.—In this journal for Dec. 15th, 1914, Hubert Humphrey recounts experiments he has carried out on the action of the essential oils on gutta-percha. He finds that eucalyptus dissolves gutta-percha, that cinnamon and cajuput have no action, and that oil of cloves leads to an increase in size, accompanied by hardness. He considers that oil of cloves is therefore the best oil to use in conjunction with gutta-percha for filling the root canals of teeth. J. C. Storey contributes an article on Efficiency in Work, and C. Elgar Thomas has a paper on Some Toothache Charms, in which, amongst other interesting details, he states that there is a church at Bonn which possesses a tooth of St. Appollonius, the patron saint of dentistry, and that this relic is exhibited in a glass case on that saint's particular day, devotees kissing the relic as a precaution against toothache.

Bulletin of the International Office of Public Hygiene. Paris: 195, Boulevard Saint Germain.—The monthly bulletin of the International Office of Public Hygiene, we are glad to note, continues to appear in spite of the war. In the list of the governments published in every issue as participating in the work of international organisation for public health purposes the names of Germany and Austria-Hungary do not appear. On the other hand, Turkey has joined. Of the powers of the entente the following are included: Belgium, Great Britain, France, Russia, and Serbia. Our ally Japan is missing; but Japan is a long way off, and her coöperation is certain to be obtained later in effect; in spirit it has been most faithfully given. Some distant countries have joined, such as Chili and Peru, and of course Australia, Canada, and the United States. The *Bulletin* gives frequently news from the countries that do not participate in the international organisation for which it is the official organ. Thus a few months ago Professor Neisser's researches on the contamination of those who nurse typhoid patients were described. These statistics, published in Berlin, set forth that on an average out of 100 persons engaged in nursing typhoid patients three contract the disease. He also affirms that 1 per cent. of the men and 7 per cent. of the women nurses, without showing any symptom of disease, become chronic typhoid carriers. In the German Empire in 1913, according to Professor Neisser, there were at least 70 such germ-carriers, and he urges that there should be a compulsory examination of all who nurse typhoid patients. The reprinting of the Decree dated Paris, Oct. 1st, 1913, and signed by the President of the Republic, on the handling of dirty linen in laundries is wise, for here another subject of first importance in times alike of peace and war is dealt with. Only large steam laundries are under notice; the absurdities of the little private laundries situated in the dirty houses of dirty slums are not regarded as laundry operations. The guiding principle is the absolute separation and disinfection by the process of washing of all the dirty linen before it enters the part of the premises devoted to ironing, sorting, and storing the clean linen. Then we have a circular

issued by the French Minister of the Interior, Public Health Department, dated Sept. 25th, 1914, concerning sanitary measures applicable to places inhabited by troops. The first part deals with the purification and storage of drinking water, and the second part the cleansing and disinfection of the premises. The use of the eau de Javel is much recommended, a fact our English medical services on the Continent should not neglect, for it is so popular, can be obtained everywhere, and does not awaken hostile prejudice like carbolic acid. Further, we have the text of a circular issued by the Swiss Federal Government to all the Cantonal governments, dated Sept. 29th, 1914, on measures that are to be taken to prevent the spread of typhoid fever. At that date there was no epidemic, but apprehension was created by the increase of sporadic cases. Therefore practitioners are called upon to be more prompt and careful to notify all cases and to take all the precautions necessary when they merely notice suspicious symptoms and before the presence of the disease is fully confirmed. These are only a few instances showing the practical bearing of the information the *Bulletin* contains; and it is always encouraging to note how sanitary measures are adopted by such a large number of different nations.

THE NEW PHARMACOPŒIA.

THE publication of a new British Pharmacopœia is an event of great importance to the medical profession, not so much by reason of the fact that it discards a certain number of more or less obsolete drugs and gives official sanction to others that were not included in the previous edition, but mainly because it alters the strengths of various commonly prescribed galenical preparations without changing their names. The omissions and additions are, of course, of interest for various reasons, not the least important of which is that they represent the progress that has been made in therapeutic science, and so far as the additions are concerned, set up standards for drugs that had hitherto been unofficial. But from the immediate practical point of view a new Pharmacopœia always needs to be most carefully examined for changes in the potency of its tinctures, extracts, and other compounds. As Sir Dyce Duckworth recently observed, in commenting upon the omission of musk and sassafras from the new Pharmacopœia, "that will not prevent their employment,"¹ while as regards the newly recognised drugs, most of these have been in common use for many years, and will involve little change in medical practice. A general outline of the new Pharmacopœia was given in THE LANCET of Oct. 10th, 1914 (pp. 901 and 907), and we now deal in greater detail with points with which it is essential that medical practitioners should become familiar without delay. Notice of publication, dated Dec. 31st, 1914, appeared in the *London Gazette* of Jan. 1st, 1915, and according to law the new standards and formulæ came into force immediately. Therefore all prescriptions written from the beginning of this year should be dispensed according to the new standards unless the prescriber expressly states otherwise. The actual number of important changes in strengths is not large, but some of the alterations are drastic, and unless special care is taken in prescribing the preparations in question undesirable results may follow.

CHANGES IN POTENCY.

The following are the most noteworthy cases in which the potency of preparations has been changed.

Tincture of strophanthus.—This is four times the strength of the tincture of the 1898 Pharmacopœia; the official dose has been reduced to one-third. The alteration in strength has given rise to much criticism, the object of the change presumably being to bring the tincture approximately to the strength laid down in the International Agreement. The tincture of the Pharmacopœia of 1885 was double the strength of the 1898 tincture, and therefore half the strength of the 1914 tincture. It would be advisable for practitioners—for a few months at any rate—in prescribing tincture of strophanthus to indicate clearly whether they mean the tincture of 1898 or that of 1914. If "tincture of strophanthus" without any qualification is written the

¹ THE LANCET, Nov. 28th, 1914, p. 1235.

pharmacist will be expected to dispense the new tincture, and it would remove any doubt the dispenser might have if the prescriber were to write "tinct. strophanth. 1914."

Tincture of opium.—This has been increased in strength by about 33 per cent. The tincture of the 1898 Pharmacopœia was standardised to contain 0.75 per cent. of morphine, but the new tincture contains 1 per cent. and is approximately the same strength as the tincture of the International Agreement. In prescribing it would be advisable to indicate that the 1914 tincture is intended. Incidentally it may be noted that as the new tincture contains 1 per cent. of morphine it is within Part I. of the Schedule of Poisons, and may only be sold by retail to persons known or introduced to the seller and on condition that an entry of the transaction is made in the poison book. The old laudanum was in Part II. of the Schedule of Poisons. Compound tincture of camphor (paregoric) contains one-tenth more morphine than was contained in the corresponding preparation of the British Pharmacopœia, 1898. Liniment of opium has been increased in the strength of its morphine content.

Tincture of aconite.—This is about twice as strong as the corresponding preparation of the 1898 Pharmacopœia, and approximately the same strength as the tincture of aconite of the International Agreement. Prescribers should indicate the date of the Pharmacopœia.

Vinegar of squill and vinegar of urguinea.—Both these are approximately twice as strong as the old preparations.

Spirit of juniper.—This is twice as strong as the old preparation.

Syrup of chloral.—This is nearly 10 per cent. stronger than the old preparation; 1 fluid drachm contains 10.9 grains of chloral hydrate.

Syrup of codeine phosphate.—This has been increased in strength by 9 per cent.; 1 fluid drachm contains 0.27 grain of codeine phosphate.

Calomel ointment.—This is twice the strength of the corresponding preparation of 1898.

Tincture of nux vomica.—This is about half as strong as the old tincture; 1 fluid drachm contains about one-sixteenth of a grain of strychnine.

Tincture of colchicum.—This is one-half the strength of the old tincture.

Tincture of digitalis.—This is four-fifths the strength of the old tincture.

Ammoniated tincture of opium.—This contains approximately one-tenth less morphine than that contained in the corresponding preparation of the 1898 Pharmacopœia.

Tincture of belladonna.—This contains seven-tenths of the proportion of alkaloids contained in the 1898 tincture; it is standardised to contain 0.035 per cent. of total alkaloid.

Tincture of picrothiza.—This is twice the strength of the corresponding preparation of the Indian and Colonial Addendum, 1900.

Belladonna plaster.—This is one-half the strength of the old preparation.

Hypodermic injection of cocaine.—This is one-half the strength of the old preparation; 110 minims contain 5 grains of cocaine hydrochloride.

Hypodermic injection of morphine.—This is one-half the strength of the old preparation; 110 minims contain 2.5 grains of morphine tartrate.

Phosphorus pill.—This contains 1 per cent. of phosphorus and is one-half the strength of the old preparation.

Phenol lozenges.—These are one-half the strength of the old; each lozenge contains approximately half a grain of carbolic acid.

Phenol ointment.—This has been reduced in strength by 25 per cent.; it contains 3 per cent. of carbolic acid.

Ammoniated mercury ointment.—This is approximately one-half the strength of the old preparation.

Compound mercury ointment.—This is approximately three-fifths the strength of the old preparation.

Mercury ointment.—This is approximately three-fifths the strength of the corresponding preparation of the 1898 Pharmacopœia.

Liniment of mercury.—This contains approximately three-fifths of the proportion of mercury contained in the old preparation.

Solution of mercuric chloride.—This has been reduced in strength from 1 in 875 to 1 in 1000.

Solution of potash.—This is nearly 20 per cent. weaker.

Syrup of ferrous iodide.—This is approximately two-thirds the strength of the corresponding preparation of 1898; one fluid drachm contains 3.75 grains of ferrous iodide.

Tablets of nitroglycerine.—These have been reduced in strength; each tablet contains approximately 1/130th grain of the trinitroglycerine of commerce.

Dilute nitric, phosphoric, and sulphuric acids have all been decreased in strength.

OTHER POINTS.

The above represent most of the noteworthy changes in the strengths of preparations. Many of them have been made in order that the compounds may comply with the recommendations of the International Conference respecting the unification of the formulæ for potent drugs and preparations in the several national pharmacopœias. Alterations, for the most part slight, have been made in the composition of various articles. For instance, the saffron has been omitted from compound decoction of aloes; salicylic acid has been omitted from solution of atropine sulphate; the syrup in compound mixture of iron has been replaced by glucose and a small quantity of powdered acacia added; in compound tincture of cardamoms the raisins have been replaced by glycerine; from compound tincture of cinchona the saffron has been omitted; in compound tincture of senna the raisins have been replaced by glycerine.

For the most part the changes in nomenclature are not likely to give rise to many difficulties. It is interesting to note, however, that liquor iodi fortis (strong solution of iodine) has been replaced by tinctura iodi fortis (strong tincture of iodine). Tinctura iodi is replaced by tinctura iodi mitis (weak tincture of iodine). The strong tincture of iodine of the new Pharmacopœia contains approximately the same proportion of iodine as the strong solution of the old, and the weak tincture of iodine contains the same proportion of iodine as the tincture of iodine of the 1898 Pharmacopœia. It is important that prescribers should note this change in nomenclature, and indicate definitely whether they require the strong or the weak tincture to be dispensed. "Tinctura iodi" by itself might leave the dispenser in doubt as to which tincture was intended. Practically all the drugs that have been added are already familiar to medical men, and the more important of these drugs were detailed in the article which appeared in THE LANCET of Oct. 10th, 1914, p. 907.

THE PUBLIC HEALTH OF DUBLIN.

THE annual report for 1913 on the state of public health in Dublin has recently been issued by the superintendent medical officer of health, Sir Charles Cameron. So much attention has been directed to the sanitary condition of Dublin within the past 12 months that the present volume may find more readers than most of the series.

The population of Dublin in the middle of 1913 was estimated to be 308,187, and the density was 39 persons per acre. The actual density in the inhabited area is really much greater, as the city boundaries include large stretches of pastoral land. Some of the information given is not easy to understand, and contradictory statements occur. For instance, we are told (p. 18) that the "number of persons residing in single-room tenements" is 21,133. It appears from a table on the next page that this is the number of single-room tenements, and the number of persons, as stated in the report of the Departmental Committee on Housing Conditions in Dublin¹ is 73,973. Again, in discussing the deaths from typhoid fever, it is said that the number in 1913—viz., 33—is the smallest on record except in 1910, when 32 occurred. A table on the next page shows that in 1912 there were only 30 deaths. Again, a statement concerning the death-rate from infectious diseases (p. 36) is copied without correction from the previous report. Slovenliness of this kind makes it difficult to arrive at the facts.

The birth-rate for the year was 31 per 1000 of the population, whereas in the suburbs it was only 17 per 1000. The birth-rate in the city shows little or no tendency to decrease. The death-rate for the year was 21.3 per 1000, and in the suburbs it was 16.1 per 1000. Of the deaths in the Dublin

¹ THE LANCET, Feb. 28th, 1914, pp. 623, 640.

registration area 42.6 per cent. occurred in the various workhouses, hospitals, asylums, and prisons.

The death-rate from the principal infective diseases, 2.4 per 1000, was the same as in the previous year. No death from small-pox has occurred in Dublin since 1904. There were 11 deaths from typhus fever, the average for the previous ten years being 3. The number of deaths due to diarrhoeal diseases and enteritis of children under 2 years of age was 470, being more than double that of the previous year. The high incidence of these diseases is in part due to the long, hot summer of 1913, and in part to the distress arising out of the labour disturbances in the city. The infantile death-rate for the year was 154 per 1000 births, as against 140 in the previous year.

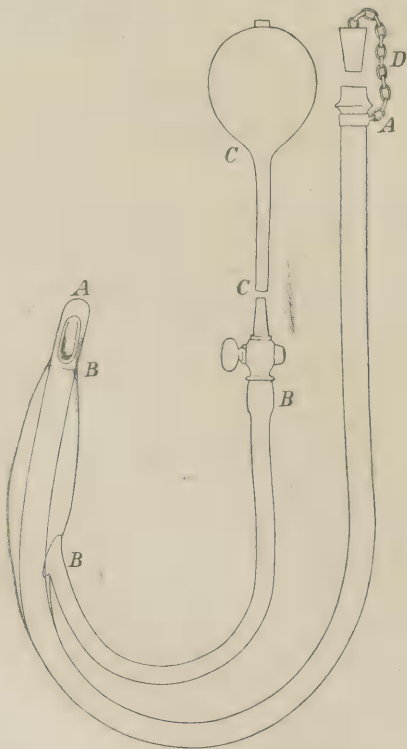
The deaths due to tuberculosis numbered 1132, of which 839 were from phthisis. The total is less by 157 than the average for the previous five years. The tuberculosis dispensary in Charles-street came into the possession of the corporation at the end of 1912. In 1913, 1559 patients were treated, the number of attendances at the dispensary being 10,533. 54 per cent. of the patients were males. A little more than half were insured under the National Health Insurance Act.

Sir Charles Cameron publishes as an appendix his reply to the report of the Departmental Committee on Housing Conditions in Dublin. Notice of it has already been taken in THE LANCET.

New Inventions.

AN OBTURATING CATHETER.

I WAS consulted about some bronchial affection in the case of a man, 83 years of age, who, as the result of an unsuccessful attempt at a suprapubic prostatectomy, bore an opening from the skin into the bladder, from which the continual dribble of urine made him most uncomfortable.



As the several mechanical appliances which had been tried had failed to stop the leakage I designed a catheter which completely answered its purpose and kept him dry both night and day. The instrument is an ordinary elastic coude No. 10, A A, fitted with from $\frac{1}{4}$ inch below the eye to about 3 inches of its length with an air-bag B, B, B,

which at its end has a stop-cock and a detachable bulb, C, C, for inflation. After passing it through a small inflated ring and introducing it into the bladder it is fastened to the body by means of a waistband in the manner of a truss. The air-bag is then inflated to the extent required completely to occlude the opening. At the other end of A is a plug, D, which is attached to it by a small chain, and can be easily withdrawn for micturition. The patient, however, for whom the instrument was intended was so intolerant of the slightest accumulation of urine in his bladder that he preferred to connect it with an ordinary urinal when he went out in his bath chair or driving.

Wimpole-street, W.

J. B. BERKART, M.D.

INTRATRACHEAL ETHER ANESTHESIA.

THE method of giving open ether with a Schimmelbusch mask has been attacked on the score of pulmonary complications which are alleged to follow. All who use this method are familiar with the frozen dew which collects on the outside of the mask, and it

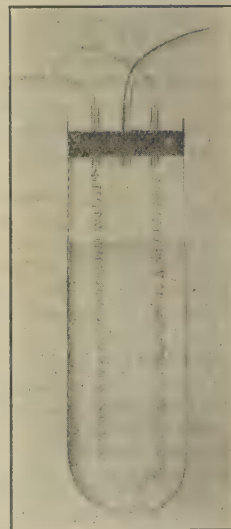
is difficult to believe that breathing air at such a low temperature does not in a certain number of cases prejudice the after results. To obviate this I have devised an apparatus for giving hot ether vapour which I have used most satisfactorily both as regards immediate anaesthesia and after-effects. The apparatus (see Fig.) consists of a thick glass test-tube fitted with a rubber cork, through which pass a glass outlet tube and two terminal connexions. The terminals are connected to a U-shaped spiral resistance wire which reaches to the bottom of the test-tube. The current can be used direct from an ordinary cautery plug. The passage of the current through the wire boils the ether, which passes off through the outlet tube to the patient, the quantity being regulated by the strength of current and length of wire. With a given current and a given resistance the amount of ether evaporated in a unit of time can be readily estimated. In practice it is found that the ether vapour reaches the patient at a higher temperature than its boiling point owing to the space above the ether becoming heated by the naked wire. In using the apparatus I have passed the ether vapour through a rubber tube and fixed the end under a Schimmelbusch mask. The subject of intratracheal ether anaesthesia has recently attracted considerable attention, which has prompted me to bring to notice the above method which ensures in the simplest possible manner the two conditions essential to intratracheal technique, these being warm vapour deliverable at a constant pressure. In cases where active ventilation of the lungs is desired a stream of warm oxygen can be easily added by means of a T-shaped connexion fitted to the delivery tube.

H. L. C. NOEL, M.R.C.S. Eng.,

L.R.C.P. Lond.,

Rothsay.

Late Resident Anaesthetist, London Hospital.



DUBLIN JOINT HOSPITAL BOARD.—The management of the Dublin Joint Hospital Board has come in for a very severe report from the Local Government Board auditor. This body, made up of representatives of the Dublin corporation and various local authorities in the county Dublin, is the governing body of Crookslin Sanatorium. The auditor found it difficult to complete his audit for 1913 owing to the condition of the books. As regards dates, there were great discrepancies between the books and the findings of the stocktaker, showing either very careless bookkeeping or considerable wastage of stock. The provision account contained numerous errors. The subsidiary bank account was considerably overdrawn, and the contributing bodies had not paid their full contributions.

THE LANCET.

LONDON: SATURDAY, JANUARY 9, 1915.

The British Pharmacopœia, 1914.

THE receipt of an advance copy of the British Pharmacopœia enabled us¹ to give some indication of the chief changes which would come into force when the new volume was authoritatively published. The actual date of appearance was, however, left uncertain at the time, and now that the publication has been gazetted medical men and pharmacists must all be grateful for the consideration shown by the General Medical Council in keeping back the volume to the latest possible moment. There can be no doubt that the introduction of a new pharmacopœia is always associated with some inconvenience, both to the medical profession, who have to become acquainted with changes which may affect prescribing, and to pharmacists, who are obliged to revise their stock in accordance with the new standard. These difficulties are greatly increased while the nation is at war. Apart from a natural disinclination to be troubled with a fresh source of anxiety, there is, in many instances, the impossibility of obtaining from abroad many of the drugs necessitated by the directions of the new Pharmacopœia. The declaration of war found the General Medical Council fully prepared to deal sympathetically with these difficulties. In the absence of the President on the continent, Dr. NESTOR TIRARD, the medical editor, represented to the Executive Committee the grave inconvenience the public services and manufacturers would incur through the early publication of the new Pharmacopœia, with the result that the statutory notice of publication in the official gazettes was postponed from Oct. 9th to Dec. 31st. Thus three months have been allowed to elapse between the exhibition of advance copies and the time of publication, during which period many reviews in technical journals have enabled manufacturers and others to make ready. Our advertisement columns show that this time has been adequate for the production of new editions of text-books; it is to be feared, however, that in some directions manufacturers may still find difficulty in meeting the requirements of the new standard, but no serious trouble should arise so long as care is shown in indicating when articles conforming to the Pharmacopœia of 1898 are necessarily employed in place of those of 1914.

On comparing the published volume with the advance copy it is found that the editors have made

full use of the opportunity afforded by the delay in publication; they have introduced numerous minor alterations, especially in footnotes, which add to the uniformity and utility of the book as a work of reference; they have also been able to profit by criticisms which have drawn attention to certain elusive misprints which had escaped observation. While minor blemishes have thus been removed, the main facts persist, essentially as in the advance copy. Reviewing the criticisms which have hitherto been published, exception has been taken to some of the synonyms, to the introduction of the metric system, and to a list of abbreviated Latin names of official drugs and preparations which has been adopted in the index. The synonym which appears to have caused the greatest uneasiness, if not dismay, is the retention of the term "laudanum" as the equivalent of *tinctura opii*. To conform with recent foreign pharmacopœias this tincture has been made about one-third stronger than before, thus bringing the sale to the public under restrictions which may be irksome to the retail vendor. Numerous letters of protest have been published on this subject in the trade journals, but if the recorded sales are to be believed it would certainly appear to be high time to introduce some check upon the supply of laudanum to the public. Apart from trade considerations, however, the alteration in the strength of tincture of opium is one which should early be recognised by all who prescribe or dispense this preparation. The introduction of the metric system has already caused some unrest amongst medical practitioners, who fear it is too late for them to learn to prescribe in a new fashion. This modest distrust is quite unnecessary, since in the preface of the Pharmacopœia nothing can be more clearly stated than that the use of the metric system is primarily intended for pharmaceutical and analytical computations, and that practitioners are at liberty to employ either the metric or imperial system for prescribing purposes. It is necessary, however, to call attention to the fact that the relation between metric and imperial doses is given in approximate equivalents. It is perfectly clear from the wording of the preface that at the next revision the imperial system will probably be omitted, and it therefore becomes important that the rising generation of medical men should become familiar with the use of the metric system in prescribing, as well as in physiological, pathological, and other laboratory work. The adoption of the metric system is not only more scientific, but it is also more in accord with the custom adopted in other pharmacopœias.

In our leading article on the advance copy reference was made to the above-mentioned list of abbreviations, which has furnished many critics with scope for levity. It should be noticed that these abbreviations are not authoritatively enjoined; they do not form part of the monographs which constitute the Pharmacopœia. The idea of some authoritative guidance is very welcome,

¹ THE LANCET, Oct. 10th, 1914, pp. 901 and 907.

since it is desirable that some consistency should be shown in the methods of abbreviation. Many readers will call to mind abbreviations which seem to be almost hallowed by custom—for example: mag. sulph. or pot. iod.; these are employed so frequently that it would seem impossible to question the intention of the prescriber, and yet both of these may be misread. Quite recently serious results followed from the use of barium sulphide where sulphate had been intended, under the abbreviation "sulph." It is desirable that abbreviations, if used, should be as short as possible, consistently with clear indication of the meaning. It is understood that similar abbreviations are likely to be included in the next issue of the Pharmacopœia of the United States, and there can be little doubt that great convenience would result from the universal adoption of a recognised series of abbreviated titles. Many misapprehensions and misunderstandings might be removed by careful study of the preface, which clearly defines the scope and intention of the principal changes that have been adopted. In the preface it will be found interesting also to note the acknowledgments of assistance received by the Pharmacopœia Committee of the General Medical Council. It is evident that the task of revision was commenced almost immediately after the publication of the Pharmacopœia of 1898, and that this revision has been undertaken by many who unfortunately are not with us to welcome the new volume. Of pharmacists, the late Mr. CHARLES EGIN and Mr. K. J. DOWNES may be mentioned, while from the long list of those who have served on the Pharmacopœia Committee since 1898 the Revising Committee undoubtedly received untold help from the labours of the late Mr. TICHBORNE and Dr. LEECH. It is, we believe, an open secret that Dr. LEECH advised the *rapprochement* with pharmacists which led to the Pharmaceutical Conference, which in time gave place to the Committee of Reference in Pharmacy.

The Physical Condition of School Children.¹

THE Annual Report for 1913 of the Chief Medical Officer to the Board of Education, Sir GEORGE NEWMAN, makes its appearance at the close of 1914, and it may be explained that these dates are not mentioned with intent to imply that the publication is belated. First, the report, although dated as referring only to 1913, covers a year ending on March 31st, 1914; and, secondly, the Chief Medical Officer takes into account in his summary the reports of all the school medical officers in the country. There are over 300 areas for Elementary Education in England and Wales, each with a principal school medical officer, and in 295 of these areas schemes of medical inspection have been approved, so that even if all the local reports reach

the Board of Education with punctuality—which is not the case—there is a great work of sifting and collating to be done before any comprehensive lessons can be derived from the mass of material. That punctuality is not always observed in the matter of local reports is indicated by the fact that this year the Chief Medical Officer issues a special request that these documents should be sent in as soon as possible, and not later than the end of March. The general spirit of the report is optimistic, and we commend its perusal to all those people who, when the first results of school inspection began to arrive, deafened us with complaints about the decay of the race. Circumstances in the war now raging may have caused some of these doleful prophets to reconsider their opinions, and this report should prepare many others of them to follow suit, for its whole story is one of quiet progress. Nor is the story, though in a Blue Book, hard to follow. Sir GEORGE NEWMAN has the gift of packing an enormous amount of information into a reasonably sized volume and of arranging his material in accordance with a logical plan. These things make it easy to obtain the facts, to realise their importance, and to appreciate at the proper value their bearing and the fairness of the official estimate. For in this record of the work carried on by the local education authorities of England and Wales, mainly in the field of school hygiene, while along some lines little more than a summary has been given of achievement, along others some clear and pregnant observations provide the public as well as the medical profession with exactly the sort of general principles which should assist in a mutual development of education as a great health factor. It becomes plain that the State machinery to this end is working smoothly, and, if slowly, yet surely.

The two sections of the report possessing the greatest general interest are that which deals with education in relation to infant welfare, and that which deals with the physical condition of school children. These matters claim at the present moment more than ever our close attention. As Sir GEORGE NEWMAN says, "In no direction are the ravages of war more serious or more difficult to replace than in the loss of human lives. Whatever degree of success may attend the nation in the present European war, the cost in life must inevitably be heavy. Consequently, the question of the preservation of the rising generation, and care for its physical fitness and equipment, is of more than ordinary importance." The physical condition of our school children we can all see to be to-day a matter of paramount importance—may we be forgiven as a nation for not having seen it in times of peace. It is here considered as it may be influenced by age, sex, urban and rural conditions, and by a combination of these factors; and throughout the report the determination is shown to regard education as a link between heredity and environment. To measure duly the

¹ Annual Report for 1913 of the Chief Medical Officer of the Board of Education. London: Eyre and Spottiswoode, Limited. Price 1s. 8d.

inter-relation of the care of the individual with the care of his environment is shown to be a necessity in educating the young, and for work in this direction to be of real value it must be founded on facts observed and collated. The very natural criticism suggests itself that the result of the inspection of school children, unless most carefully made and on some more or less uniform plan, may result in masses of statistical findings having no common points of comparison, and furnishing therefore little opportunity for deriving from the figures indications for practical advance. The Chief Medical Officer, with a proper feeling that work done should have its executive outcome, suggests to school medical officers how they can best assist the Board to a comparative study of the data which they obtain, in a way which will not arise from mere records, however complete, of defect and disease. He asks them to make a systematic and comparative study in their education areas in regard to the following five points: the presence and distribution of disease in childhood; its causes and the conditions favourable to its production; the effects and sequelæ of such diseases and defects; the means of treatment and their results; and the means and methods of prevention; and in an appendix to the report specimen tables are printed as indications to school medical officers how to keep their records with a view to securing uniformity. If the indications are faithfully followed, the accumulated records will have a living value, and may help in the interpretation of many obscure points in sociology.

Discussing the influence of age and sex upon the physical condition of childhood, Sir GEORGE NEWMAN institutes a comparative study, admitting that the classification is arbitrary rather than scientific, between "entrants" and "leavers." When we look at the figures respecting London we have at once the sad circumstance revealed to us that during the period of school the general physique of children does not tend to improve. Thus, in London, "entrant" boys show 10·8 and girls 9·8 per cent. of poor and bad nutrition, while of "leavers" no less than 14·7 per cent. boys and 14·3 girls show the same conditions. These figures are supplemented by others dealing with different districts in London, and here the size of London stands us in good stead—as a rule that size prevents the discussion of any social problem—because we are able to consider very large populations, equivalent to populations in first-class cities both at home and abroad, who can be classified as belonging to groups of districts where the standards of comfort and well-being are markedly different. Taking Bermondsey as an extreme example of a district where deterioration of physical condition takes place during school life we find that of the "entrant" boys and girls 5·6 and 5·0 per cent. respectively show poor and bad nutrition, while among "leavers" in Bermondsey 28·5 per cent. boys and 29·6 girls display these defects. This is a serious indictment of the environment which Bermondsey is able to provide for its

childhood, for the percentage of poor material at the beginning is not excessive. In Hammersmith the figures of the "entrants" showing poor and bad nutrition are for boys 5·6 per cent., and for girls also 5·6, while among "leavers" the figures have been transformed for boys to 7·0 per cent. and for girls to 12·0, showing the same defects. Another borough, which is considered in the same group as Hammersmith, is Holborn, where 5·7 per cent. of the boys and 4·4 per cent. of the girls show poor and bad nutrition as "entrants," while of the "leavers" 14·0 per cent. of the boys and 8·8 per cent. of the girls show the same defects. We have not selected these figures arbitrarily for comparison, but only to show how information obtained methodically and on a uniform pattern cannot fail to be valuable. There must be some underlying reason for the fact that the school age has such an ill-effect on the girls in Hammersmith and on the boys in Holborn. The influence of sex in London as a whole appears to be slightly to the advantage of girls, inasmuch as 10·8 per cent. of "entrant" boys and 14·7 of "leaver" boys are reported deficient in nutrition, as compared with 9·8 per cent. of "entrant" and 14·3 per cent. of "leaver" girls. Mr. F. E. FREMANTLE, the medical officer of health of Hertfordshire, in his annual report supplies, however, some figures which give interesting exceptions to the London finding. His figures show that at the ages of 5, 7, and 12 years girls are invariably worse off than boys. At 5 years the percentages of defect for boys and girls respectively are 2·5 and 2·6, at 7 5·1 and 5·4, and at 12 7·0 and 8·1. A similar finding is recorded in the rural areas of Bedfordshire, though the standard of poorness of nutrition is more severe than in Hertfordshire, the percentages being 23·7 for boys and 25·1 for girls. Among purely urban areas the return for Bilston shows the alarming proportion of 63 per cent. of senior girls "below normal or bad," as compared with 38·42 per cent. of senior boys. Statistics systematically gathered and intelligently read may give us the clue to these obscure discrepancies.

In one important direction Sir GEORGE NEWMAN'S report, transgressing his own limitations of date, deals with matters of present moment. The section referring to the provision of meals for children attending public elementary schools takes notice of the situation as recently as after the outbreak of the war. It will be remembered that the Education (Provision of Meals) Act, 1914, was read for the third time on August 4th, 1914, receiving the Royal Assent three days later, so that the new legislation arrived exactly when responsibilities of a far-reaching sort were certain to be thrust upon the authorities. That the dislocation of trade following upon the war would lead to an increase of distress among the poorer classes of children was inevitable, and on the date on which the Act came into force the Board of Education issued a circular letter to all the authorities under its jurisdiction, urging them to make

preparations to deal with subsequent trouble. On August 15th the Board issued a memorandum on the methods to be adopted in providing meals for children at public elementary schools, advising dietaries suitable to the circumstances. It is too early to say what effect the thoughtful and even elaborate counsels given in the memorandum have assisted the local authorities in dealing with the situation, but there is no doubt that much has been done to grapple with it. There is machinery now in every educational area for feeding all the school children if necessary, but Sir GEORGE NEWMAN'S analyses of the number of children fed and of the number of meals provided show that a great deal remains to be done. He reviews all the activities of the authorities in the matter of providing meals for their charges between the year 1906, when the first Act of Parliament for providing meals for children attending public elementary schools was passed, and the present day, and points out that this manifold experience has not yet supplied any satisfactory method for selecting the children to be assisted. To mention only one difficulty, the educational authorities have power to recover the cost of meals from parents who are not necessitous, while there is no obligation on the parents to send their children to receive the meals, even though the children have been recommended by the school medical officers as ill-nourished subjects who should receive better food. What is to stop the unfortunate child being prevented by the parents from attending the free meals? The whole of this section of Sir GEORGE NEWMAN'S report deserves anxious attention, and, indeed, it should all be read, and always from the point of view that in a scheme of State education scientifically conducted our rulers have an opportunity of mitigating at the same time the evils of heredity and the evils of environment.

Annotations.

"Ne quid nimitis."

MEDICAL PRECAUTIONS IN CASE OF AIR RAIDS.

THE probability of shells falling on unfortified coast towns is now obvious to all. That bombs may possibly be dropped upon London is clearly present to the minds of the authorities, as is shown by the official announcement in the daily papers telling the general population what to do in the circumstances. These instructions may be useful for the doctors' families, as for the families of any other citizens. But the medical men themselves in the neighbourhood of such a catastrophe know that they have an active duty to perform for their fellow-citizens and their country. If the reports as to the size, number, and high explosive character of the Zeppelin bombs are approximately correct, the number of the casualties might be in London far in excess of those which have occurred in less densely populated towns like Antwerp. And the wounds would be of a very different character from those with which

the police have to deal in ordinary street accidents. We hear that arrangements are being made, with the full approval of the police, for the speedy despatch of a number of surgeons to the spot in the event of the terrible emergency. It may reasonably be hoped that the Zeppelin ships will not succeed in reaching London itself, but it is well to be forearmed, and it is certain that if they did, the most special police regulations would be subjected to a severe test. Local medical men would then be of great assistance. All medical men are therefore urged to see that their professional cases or bags are well stocked, and especially that a hypodermic syringe, a tourniquet, some dry dressings, and some bandages are not missing. Then, while their wives and children seek shelter, they should go to the spot of which they will be advised and quietly set to work, in harmony with the police, to render such first aid as may be essential before the wounded are removed to the hospitals or other institutions which, by previous arrangement, will be prepared to receive them, and to which the police will see that they are transported as expeditiously as possible. The scheme of preparation has been carefully thought out; it is not the expression of an unreasonable sense of scare, and must not be interpreted by the public as such. It represents the desire and intention of the medical profession, in the face of a disaster which may arrive, to meet its terrors and minimise its effects.

THE NEW YEAR HONOURS.

AMONG the new Privy Councillors is the name of a medical man, Sir William MacGregor, G.C.M.G., C.B., who recently retired from the governorship of Queensland. He has held a similar position in various parts of the British Empire, and was at one time Government medical officer in the Seychelles and chief medical officer for Fiji. Dr. Herbert Lethington Maitland, of Sydney, has been made a Knight Bachelor; Major Samuel Rickard Christophers, I.M.S., officer in charge of the Malaria Bureau at the Central Research Institute, Kasauli, and Colonel George William Patrick Dennys, I.M.S., Inspector-General of Civil Hospitals in the Central Provinces and a member of the Council of the Chief Commissioner for making laws and regulations, have been made C.I.E.'s; and Mr. John Marnoch, Regius professor of surgery in the University of Aberdeen, has been made a C.V.O. The recipients of the Kaisari-Hind gold medal include Major James Husband, I.M.S., civil surgeon at Wana, N.W.F. Province; and Dr. Charles Albert Bentley, special officer under the Sanitary Commissioner of Bengal. In the new Order of the Military Cross for distinguished and meritorious service awards have been made to Captain H. Stewart, R.A.M.C., Captain E. D. Caddell, R.A.M.C., Lieutenant C. Helm, R.A.M.C., Lieutenant (temporary) E. J. Wyler, R.A.M.C., Captain J. F. Murphy, R.A.M.C., Special Reserve, and Captain Kanwar Indarjit Singh, I.M.S. In the same honours list it is announced that the Indian Order of Merit of the Second Class has been conferred on Senior Sub-Assistant Surgeon Pandit Shanker Dass (attached) "for cool courage in attending wounded under heavy fire at Neuve Chapelle." To all these colleagues, whose names are thus added to those whose distinctions we have chronicled from week to week during the conduct of the war, we offer in the name of the

medical profession our hearty congratulations. At the same time we note with pleasure that Dr. J. Dobbie, F.R.S., who acted most efficiently as a scientific referee in chemistry for the new British Pharmacopœia, and Mr. Perceval Alleyne Nairne, chairman of the committee of the London School of Tropical Medicine, have received the honour of knighthood, and that the Earl of Aberdeen has received the dignity of a marquessate. The good work which both Lord and Lady Aberdeen have done in regard to the prevention of tuberculosis is well known to all our readers.

EPIDEMIC POLIOMYELITIS AT WEST KIRBY.

ELSEWHERE in this week's issue we publish a short record by Dr. George Jubb of a small epidemic of acute poliomyelitis at Hoylake and West Kirby, the chief interest of which lies in the fact that for three years in succession small epidemics have occurred in these localities. The paucity of the actual number of cases renders the drawing of any definite conclusions somewhat hazardous. It may be remarked, however, that the general hygiene of these seaside resorts leaves nothing to be desired, and Dr. Jubb has been able to elicit only one fact of possible etiological significance—viz., that all the Hoylake cases had a common milk-supply. It has been shown in many previous epidemics that the milk-supply is not a factor on which any weight can be laid; nevertheless, in view of our ignorance of how the virus spreads, it is well not to overlook any possibility of this sort; indeed, minor epidemics may furnish data uncomplicated by other and confusing features. Dr. Jubb is not in a position to demonstrate any connexion between the milk-supply and the disease, but merely records the fact. Greater importance should be attached to his remark that the father of the first patient of last summer's epidemic is a medical practitioner who attended two of the cases of 1913. Flexner and his collaborators have shown that the virus of poliomyelitis may remain in an active state in the nasal mucosa of individuals who have not themselves suffered from the disease, but who have been in the company of affected patients. In one case they were able successfully to inoculate an ape from the washings of the nasal mucosa of the parents of a case whose attack had occurred nine months previously. Netter has observed the same phenomenon in some of the French cases of two years ago. The fact that the virus may be kept alive by otherwise normal carriers is therefore demonstrated, and Dr. Jubb's surmise that in this fashion the West Kirby epidemic recommenced is probably correct. It is curious that his four cases are all males, and it would be interesting to know what is the sex of the other members of the families that have remained unaffected, though presumably in contact with the infected patients. Dr. Jubb is not inclined to attach importance to the possibility of the virus being spread by the agency of flies of the house, stable, or other variety. Experimental work with the stable fly, *Stomoxys calcitrans*, has been distinctly inconclusive. Whether the sand flea can be incriminated is doubtful. Observers have frequently been struck by the occurrence of cases of poliomyelitis in association with bathing or wading in the sea and again we do well not to ignore the possibility of some direct connexion in this respect. But the endemic poliomyelitis of large cities cannot be thus explained.

The evidence at present suggests that apart from human carriers the virus may be kept alive and transmitted by a variety of agencies.

A RARE MALFORMATION OF THE HEART.

WE publish this week an account by Professor Wardrop Griffith of a rare but highly instructive anomaly of the heart. The heart was that of a man, aged 30, with a communication between the right and left ventricles, but the abnormal opening, in place of occupying the site of the pars membranacea septi—the last part of the interventricular septum to be formed—was situated further forwards. In this rarer form the infundibulum of the right ventricle communicates with the left ventricle under the aortic cusp from which the right coronary artery opens; in the usual anomaly the "body" of the right ventricle communicates with the left under the "non-coronary" cusp of the aorta. Professor Griffith has done a service by drawing attention to the fact that the rare or anterior opening is of a totally different nature from the common or posterior opening. On the part of the interventricular septum which forms the lower margin of the posterior opening is found the main stalk of the auriculo-ventricular bundle; the bundle divides and passes down on the sides of the interventricular septum before the site of the anterior opening is reached. We may thus infer, from a study of such malformations as that described by Professor Griffith, that the interventricular septum may be regarded as being made up of two parts—a posterior and an anterior. Recent investigations into the comparative anatomy and development of the heart have provided an explanation of the double origin of the interventricular septum and the presence of interventricular openings of two kinds. The explanation is found in the development of the mammalian right ventricle; it is produced by the fusion of two chambers—the ventricle proper and the bulbus cordis which forms the fourth or final chamber of the heart in lower vertebrate animals. The ventricle proper forms only the "body" of the mammalian ventricle; its infundibulum is developed from the bulbus cordis. The left ventricle is also primarily of double origin, but in the human heart and in that of all higher vertebrates the "bulbar" element undergoes—except as a rare anomaly—a complete atrophy. The importance of Professor Griffith's communication lies in the fact that it calls attention to the double constitution of the right ventricle. The physiology of the infundibulum of the right ventricle has never been studied apart from the ventricle as a whole; from the history of the infundibulum we are justified in supposing that it must play a distinctive rôle in the physiology of the circulation.

ROTARY DISLOCATION OF THE ATLAS.

IN the *Boston Medical and Surgical Journal* of Nov. 28th, 1914, Dr. John J. Morton has reported a case of rotary dislocation of the atlas with certain unusual features. A boy, aged 12 years, was admitted to hospital complaining of pain in the back and inability to raise the head from a bowed position on the left shoulder. Three days previously he was wrestling with a much bigger boy and was twisted violently towards the right while his head was firmly held between his opponent's legs.

Immediately afterwards his head was inclined towards the left shoulder and could not be brought back to the middle line. He suffered from severe pains in the neck which prevented him from sleeping for two nights. Directly after the injury he could not speak aloud. He had considerable difficulty in swallowing and took nothing but liquids. On examination he appeared to be in much pain and spoke in a scarcely audible whisper. His head was fixed in such a position that the left cheek rested on the corresponding shoulder. He supported his forehead with his left hand and cried with pain if the hand was removed. Passive movement of the head was very painful. The spines of the axis, seventh cervical, and first dorsal vertebrae were prominently felt and there was a depression below the occiput. The transverse process of the atlas could not be felt in the normal position on either side. The mouth could not be opened sufficiently to allow examination through the pharynx. The reflexes were exaggerated on both sides. A radiogram taken from a lateral position showed a displacement between the atlas and axis, an eighth cervical vertebra, and an appearance which caused suspicion of a fracture of the atlas. Under anaesthesia an attempt was made to reduce the deformity. Examination then showed a prominence on the right side of the pharynx on a level with the soft palate, which was thought to be the transverse process of the atlas. The head was extended on the body and gently rotated toward the right. At the same time an assistant pressed on the prominence in the pharynx. The head easily came to the middle line without a catch or click of any kind. The position was maintained by a bandage around the head, neck, and chest. On regaining consciousness the pain had disappeared and normal phonation was restored. At the end of two weeks the bandage was removed and passive movement of the head was possible without restriction or pain. A skiagram showed the atlas and axis in normal relation. At least 14 cases of uncomplicated rotary dislocation of the atlas have been recorded and many cases associated with fracture of the odontoid process or arch of the atlas. Aphonia has not been previously reported as a symptom of rotary luxation, though it has been observed in other forms of dislocation of the atlas and in dislocations of the upper cervical vertebrae. It appears to be due to injury of the vagus nerve. Supporting the head with the one or both hands, difficulty in opening the mouth, and dysphagia have been observed in cases of dislocation of the atlas. The last of these symptoms has been attributed to injury of the upper cervical nerves.

THE POSITION OF FINE CHEMICALS.

An authoritative estimate of the part played by this country in chemical manufactures was given in a paper recently read before the Newcastle section of the Society of Chemical Industry by Mr. W. H. Martin, J.P., F.R.S.E., F.C.S., a well-known chemical manufacturer. After expressing the opinion that there is absolutely no more reason for the Government either directly or indirectly to subsidise or assume control of the dye manufacturing industry than of any other, he stated his impression that there are many important manufacturers in this country who will quickly cope with the necessities of the consumers. He alluded forcibly to the ignorance which prevails as to what our nation does accomplish

in the way of manufacturing chemicals of prime importance, and nowhere is this more apparent, he added, than in the region of medical substances. With regard to morphia, for example, regret has been expressed that the supply comes from Germany. As a matter of fact, practically the whole supply for Europe, including Germany, is manufactured in Great Britain. Quinine, again, though largely made on the continent, is produced in quantities in this country which are far more than is required for the whole of the British Empire. The case of caffeine is interesting. Mr. Martin reminds us that it was first made by an Edinburgh firm and exhibited by them at the Vienna exhibition of 1873; after that, when the demand increased, it was made in Germany for a considerable period, until our Government allowed the waste tea which came into the London docks to be denatured. Since that step was taken caffeine has been made to an enormous extent in this country. In respect of other alkaloids produced in this country, Mr. Martin quoted the following words of a manufacturer: "On the general question of alkaloids we may assure you that in scarcely any instance have we ourselves been outstripped by Germany in such products as we have ever seriously taken up. On the contrary, before the war Germany was our best customer, and we venture to think this is a fairly good answer to a great deal of the loose talk at present indulged in by writers to the newspapers on what is sometimes described as the decadence of British industries." Apparently no chloroform comes from Germany at all, but it is made there for home use, while British chloroform is exported to a considerable extent to all parts of the world. The early success of certain synthetics, notably antipyrin, has proved, Mr. Martin thinks, a snare to German science. "Hardly a month passes," he said, "but that some new substitution compound with a trivial name to indicate its alleged medicinal properties, and a scientific name intended to suggest profound research, is introduced to English medicine." For a time, he allows, we shall be placed at a great inconvenience with respect to a few remedies which are of value, but he has been assured by one of the oldest aniline manufacturers in this country that there are no difficulties in making these drugs by anyone who understands the business, that they are being made, that their output is being increased enormously, and that probably new manufacturers are introducing synthetic medicinal products. With regard to scores of other synthetic remedies (so-called) he is of the opinion that the sooner they are consigned to the oblivion from which German enterprise brought them the better for science and medicine. Mr. Martin in the closing sentences of his interesting paper gave a very suggestive example of the severe handicap experienced in this country by the restrictions placed on experiments upon animals. His firm were the first to manufacture animal extracts, following the original suggestions of Brown-Séquard. At the instance of Professor George Murray they prepared, above all, thyroid extract. But in the case of suprarenal extract they were soon outdistanced by the importation of the active principle from America and Germany. This product was standardised by physiological experiment, as is necessary in order to guarantee its activity and purity. Delay in developing an equally active and pure extract here was caused by the restrictions of the Government, but eventually a licence was granted and a product was put upon the market equal to

what was being made and sent into this country from abroad. As Mr. Martin rightly points out, there exists this difference in regard to experimental research in relation to medicine at home and abroad, that while in Germany and America no difficulty is placed in the path of scientific research or manufacture, we at home are hampered by numerous restrictions, and it is only with difficulty and at great expense that animals suitable for scientific purposes can be obtained. In every town hundreds of animals are annually destroyed without having been of the smallest service to any human being, whereas in our laboratories during their passage to euthanasia the same animals might have ministered to the suffering of humanity. With Mr. Martin's statements as to the hindrance to scientific research caused by the restrictions on the employment of animal life for the purpose we are in agreement, but the desire of the legislature to make the regulations as little oppressive as possible is seen to be sincere. We accept also his statement, all the more gladly that the reverse has been so widely said, that we possess a flourishing British chemical industry, and that it is not so much a question of restoring lost trade as that of expanding what we possess and of putting renewed vigour into it and fresh scientific force. We are glad to learn that the decadence so freely talked about is only apparent and not real, but it is none the less necessary that we should increase the scope of our activities by admitting into them all the resources of modern skill and knowledge in every detail.

Dr. George Sigerson has been appointed by the Lord-Lieutenant of Ireland to be a Member of the Board of Visitors of the National Museum of Science and Art, Dublin, for a period of five years.

Dr. S. A. Kinnier Wilson has been elected a corresponding member of the Philadelphia Neurological Society.

LEPER HOUSES AND MEDIEVAL HOSPITALS.¹

BY CHARLES A. MERCIER, M.D. LOND., F.R.C.P. LOND.,
F.R.C.S. ENG.,

LATE PHYSICIAN FOR MENTAL DISEASES, CHARING CROSS
HOSPITAL.

In the last lecture² I said that the leper house partook of the nature of the prison, the monastery, and the almshouse. With the prison aspect I have dealt, but at least equally important in the minds of the founders, not only of leper hospitals but of hospitals for whatever object, was that the hospital should be carried on as a monastic institution.

The Monastic Constitution of the Medieval Hospitals.

Many hospitals had churchmen at their head; many were on the same foundation as a college for priests, or for canons, regular or secular, and all without exception had a monastic or semi-monastic constitution. The obvious explanation is that in times when there was no guarantee society to ensure the faithfulness of the almoner of charitable funds there was a manifest safeguard in entrusting the administration of such funds to those who had taken a vow of poverty, and had bound themselves

to live what is now known as the simple life. This is the obvious explanation, but I believe that, like most obvious explanations, it is incorrect, or at least insufficient. It is scarcely possible for us in these days to realise how large a part in the lives of our forefathers was occupied by the Church. It might have been said of the Church, as was said of another matter, that—

'Twas allotted to man with his earliest breath,
Attends at his birth, and awaits him at death,
Presides o'er his happiness, honour, and health,
Is the prop of his house, and the end of his wealth—

and in the interval it regulated a very large share of his life. The chief field of industry was the tilling of the soil, and not only was one-third of all the land of this country in the hands of the Church, but at every gathering of the produce of the land the husbandman must set apart one-tenth as tribute for the Church. The very calendar was reckoned, not by the days of the month, but by the saints' days and the feasts of the Church. A date was recorded, not as the 16th of June or the 11th of August, but as the eve of St. Alban or the day after the feast of St. Lawrence. The priest combined in himself all the learned professions, and no undertaking of importance could be effected without him. At any rate in rural districts, he was not only the priest but the only available physician and lawyer. When the layman was sick the priest heard his confession and exhorted him to benefit the Church by his will. Then, that there might be no backsliding, the priest assumed his legal function, and as a lawyer drew his client's last will and testament. In his character of physician he then put his patient to death; and finally, resuming his legal functions, he proved the will in the ecclesiastical court. The reason why every hospital had a semi-monastic foundation was, as I take it, that it never occurred to the pious founder that it could have any other. It was as natural, as proper, as inevitable to him to provide a monastic framework for his charity as it is to us to provide physicians and nurses. No additional motive was needed; but if one had been needed, it would have been found in the provision, so often made, for a perpetual succession of prayers for the soul of the founder. In fact, in some hospitals, notably in that founded by the celebrated Richard Whittington, thrice Lord Mayor of London, this was frankly the main object of the foundation. By his will, Whittington founded first a college of priests and clergymen, and in the same foundation a hospital for 13 poor people; and he strictly enjoined them all, priests, clergy, and poor alike, to pray daily at all the canonical hours for his soul and that of Alice his wife; and at other times, when they were not at church, they were to say daily thrice 50 angelical salutations, with the Lord's prayer 15 times, and were all to meet daily at the tomb of the founder to say the psalm *De Profundis* and to invoke the mercy of God on the souls of him and his wife Alice. It seems, therefore, that Whittington took every precaution that was humanly possible to secure for himself and his wife a prosperous hereafter, and it looks as if the charity that he exercised towards the 13 poor began, in a special sense, at home.

In many hospitals the same regulations as to attendance at divine service at all the canonical hours are enjoined on the inmates, and in addition they are exhorted to their private devotions, which were by no means to be perfunctory or neglected, and punishment, which would now be looked on as

¹ Being an abstract of the FitzPatrick lecture No. II.
² THE LANCET, Jan. 2nd, 1913, p. 33.

severe, was inflicted for negligence. The hospital was, in fact, a fourth order of religious house, ranking after the college, as the college ranked after the priory, and this after the abbey, and any of these might be superior in wealth and influence to some neighbouring foundation of superior dignity. The hospital usually, though not invariably, had some charitable function tacked on to its monastic purpose. Most hospitals, especially after the cessation of leprosy, were almshouses for the support of the poor and the infirm; many were for the relief of travellers, and others for the care of the sick.

Hospitals Founded in the Middle Ages.

The first hospital founded in England was established early in the tenth century at Flixton in Yorkshire by one Acehorne. Its government was entrusted to an alderman and 14 brothers and sisters, and its purpose was the preservation of travellers, that they might not be devoured by wolves and other wild beasts abounding there. Curiously enough, the second English hospital, which was founded shortly afterwards in the reign of the same king, Athelstan, was also connected with wolves, for it was endowed by the King with Peter corn—that is to say, one sheaf of corn from every plough throughout the bishopric of York. These sheaves came into the King's hand by gift from the diocese on condition that he should destroy the wolves, which were so numerous in those parts that they devoured the cattle, and they were accordingly quite extirpated by King Athelstan. Of this hospital, which was first dedicated to St. Peter, and afterwards, on its refoundation by King Stephen, to St. Leonard, the ambulatorium still exists at York. It was, at the visitation in the time of Henry VIII., the wealthiest hospital in England, its revenues exceeding those even of St. Bartholomew's in Smithfield. St. Leonard's still remains a charitable foundation, and still supports 21 poor persons in place of the 224 that it maintained at the height of its prosperity.

These appear to be the only hospitals founded in this country before the Conquest, but ten years after that event the Pilgrims' House was founded in connexion with Battle Abbey, and two others, St. Nicholas at Lewes and St. Wulstan at Worcester, were founded in the reign of the Conqueror. A third, St. Nicholas at Nantwich, was founded in the year of his death, but what the objects of these hospitals may have been cannot now be known, for no record remains. It was Lanfranc, however, the great Archbishop of William, who founded in the succeeding reign the first hospitals for the sick ever established in this country. These were the Leper House of St. Nicholas at Harbledown, near Canterbury, and the Hospital of St. John the Baptist without the North Gate of Canterbury for poor men and women "suffering from several diseases"—that is to say, from diseases other than leprosy. Both these foundations are actively dispensing charity at the present day, though they are no longer devoted to their original purpose of receiving the sick. These six hospitals were all that we know of that were founded in this country in the eleventh century, and all of them were founded in the last 34 years of that century.

In the next 50 years there were founded 46 hospitals, of which 24 were leper houses; and the whole of the twelfth century saw the foundation of 168 hospitals, including 80 leper houses. In the wonderful thirteenth century the foundation of leper houses had begun to slacken, in spite of the

increase of the population, the number being only 75, but 167 hospitals for other purposes were founded in that century, the combined number being 242. In the middle of the fourteenth century occurred the Black Death, which swept off from a half to two-thirds of the population, and accordingly we find that while 111 hospitals (42 of them leper houses) were founded between 1300 and 1350, only 67 (including 20 leper houses) were founded in the remainder of the century. The falling-off of leper houses was due in great part, no doubt, to the diminution of leprosy, for in the next half-century no leper house at all was founded, and in the rest of our history the number was not more than ten. However, for some reason the rate of foundation of hospitals was not maintained, only 96, including five leper houses, being founded in the fifteenth century, at the conclusion of which the Middle Ages may be considered to have come to an end. The total number of hospitals founded in this country in the Middle Ages was, as far as is known, at least 691, of which 224 were leper houses. This provision for the poor and sick was, of course, in addition to the very large amount that was provided by the monasteries and friaries, and in proportion to the population was certainly generous.

The Objects of the Foundations.

The objects of these foundations were various, and some of them strike us as whimsical. They were sometimes purely monastic, but usually there was some charitable purpose tacked on to the monastic constitution of lay brothers and lay sisters, and most of them were wholly or in part almshouses. In many cases the recipients of the charity were the poor and infirm; in one case poor, sick, and lame; in one case poor distressed people, blind, and other poor persons; in one for the poor, the sick, and for entertaining travellers. Some hospitals were merely for the dispensation of doles, either of money or of food. At Billeswicke, near Bristol, the foundation provided that a hundred poor men were to be fed daily for ever, and each of the poor was to have a loaf of the weight of 45 shillings and made of equal parts of bean flour and barley. He was to have also a sufficient quantity of pottage made with oatmeal. This was in 1229. Or the dole was of money. Queen Eleanor, the dowager of Henry II., directed that at St. Catherine's by the Tower (after the usual religious services had been satisfied) every day in the year till the 16th of November there should be given to 24 poor one halfpenny each, equivalent at the present day to about fifteen-pence; and on the 16th of November, being the day on which King Henry died, one halfpenny each to a thousand poor. In many cases the hospitals provided lodging for poor persons, sometimes alone, sometimes with board and clothing, sometimes with a pecuniary allowance instead of board or of clothing, or in addition to both. Thus, William Elsing, the founder of Elsing Spittle (1329), provided that "in regard that many poor people got their bread by the alms of good Christians, yet had no lodging to entertain them," there should always be beds and rooms for one hundred blind and other poor wretched persons." This was the first hospital founded in this country specifically for the blind. At Newstede, near Stamford in Lincolnshire (twelfth century), a hospital was founded for seven infirm poor persons, who were to reside there and to have necessary food and clothing. At St. Bartholomew's at Oxford, there were to be six infirm brothers and two sound to take care of its business, and each brother

was to have ninepence (about 20s. now) per week, and the master, who was to be a priest, six marks per annum.

Leper's Allowances of Food and Clothing.

In several hospitals the amount and quality of the food and clothing allowed to the inmates was minutely specified, and in some was extremely liberal. Thus at the Leper House of St. Mary Magdalen at Ripon (early twelfth century) every leper was allowed a garment called rak and two pairs of shoes yearly, and every day a loaf fit for a man's sustenance, and half a pitcher of beer, a portion of flesh on flesh days, and three herrings on fish days. In process of time, no lepers coming to the hospital, the charity was changed to a dole at the feast of St. Mary Magdalen to every poor person coming, of one loaf worth a halfpenny, the quarter of corn being worth 5s., and one herring. The loaf would now be a tenpenny one. At the great Leper House of St. Julians (1146) at St. Albans the allowances were extremely generous. Each leper had every week seven loaves, five white and two brown, and every seventh week 14 gallons of beer, and on each of the great feasts of the Church one loaf, one jar of beer, or a penny for the same. At Christmas each leper received 40 gallons of good beer, or 40 pence for the same, and his share of two quarters of pure and clean corn. At the feast of St. Martin each leper was to have a pig, on the feast of St. Valentine a quarter of oats, on the feast of St. John the Baptist two bushels of salt, on each Wednesday in Lent bolted corn of the weight of one of their loaves; and in addition the following sums of money: On each of the great feasts of the Church one obolus; at the feast of St. Julian and at the feast of St. Alban one penny; at Easter one penny, which is called flavonespani; on Ascension Day one obolus for buying potherbs; on the feast of St. John the Baptist 4s. for clothes; at Christmas 14s. divided among them for their fuel during the year; and at the feasts of Easter and Michaelmas 30s. 5d. to be divided between them equally.

At Shireburn Hospital in Yorkshire (1311), for 65 lepers, the daily allowance of each leper was a loaf weighing five marks and a gallon of ale to each; and betwixt every two one mess or commons of flesh three days in the week, and of fish, cheese, or butter on the remaining four. On high festivals a double mess, and in particular, in the feast of St. Cuthbert in Lent, fresh salmon if it could be had, if not, other fresh fish; and on Michaelmas day four messed on one goose. With fresh fish, flesh or eggs, a measure of salt. When fresh fish could not be had, red herrings, three to each mess, or cheese or butter by weight, or three eggs. During Lent each had a razer of wheat to make frumenty and two razers of beans to boil; sometimes green meat or onions; and every day except Sunday the seventh part of a razer of bean meal, but on Sunday a measure and a half of pulse to make gruel. Red herrings were prohibited from Pentecost to Michaelmas, and at Michaelmas each received a razer of apples.

The lepers had a common kitchen and a common cook, and fuel, and utensils for cooking—viz., a lead, two brazen pots, a table, a large wooden tub for washing or making wine, a laver, two ale vats, and two bathing vats. They were provided with fire, candles, and all necessaries; the old woman who attended on the sick had every week three wheaten loaves and one mess of flesh or fish. Each leper had a yearly allowance for his clothing of three

yards of woollen cloth, six yards of linen, and six of canvas, and the tailor had his meat and drink the day on which he came to cut out their clothes. Even the grave digger had his meat and drink when a brother or sister was buried. From Michaelmas to All Saints two baskets of peat were allowed on double mess days, and four baskets daily from All Saints to Easter. On Christmas Eve four Yule logs, each a cartload, with four trusses of straw, and so on, and once a year every leper received 5s. 5d. in money.

Hospital for Persons Losing their Memory.

From time to time we read in the newspapers accounts of persons found wandering in the streets, having entirely lost their memories, and knowing not who they are, where they live, or even their own names. We are apt to think that this is a purely modern occurrence, and that it is due in some unexplained way to the intensity of the struggle for life in these days, and the rapid rate and high pressure at which we live. It seems, however, that it was not unknown five centuries and a half ago, for in 1371 Robert Denton purchased for 40s. of King Edward III. a licence to found a hospital in a house of his own, in the parish of Berking Church in London, "for the poor priests and other poor men and women in the said city who suddenly fell into a frenzy and lost their memory, to reside in till cured." For some reason, perhaps for a lack of patients answering this description, Robert Denton afterwards changed his mind, for we find that Richard II., in the second year of his reign, by charter allowed him to annex his charity, and another messuage in the parish of St. Laurence Pountney, to the Hospital of St. Catherine by the Tower.

Sources of Revenue.

The liberal allowances made to so many inmates in the larger hospitals imply considerable revenues, and the revenues of some of the mediæval hospitals were very large. They were derived for the most part from endowments, though then as now a portion of the revenues were obtained from alms, which we now entitle voluntary contributions, economically making eight syllables do the work of one. The endowments were very varied in character, consisting for the most part of land, or of the appurtenances of land, such as houses, mills, manorial rights, free pasturage, rights of lopping and topping or collection of firewood, fish-ponds, and so forth. Sometimes, however, the endowment was of a franchise, more or less valuable. The most valuable of these was the right to hold an annual fair, which was bestowed upon, for instance, St. James's Hospital, near Westminster. All leper houses were by a bull of Pope Alexander III. freed from the obligation of paying tithes. Some, such as the great house at Burton Lazars, were exempted by royal grant from all sorts of taxes and contributions. Some received tolls for passage by land or by water, or exemption from tolls. Thus Henry III. gave to the Maison Dieu at Dover the tenth of the profits accruing to him by passage of the said port, and Magnus, King of Man and the Isles, exempted the ships belonging to Conyngesheved Hospital in Lancashire from paying any dues in the ports of his dominions.

The bounty of some benefactors was so generous that they granted freely what did not belong to them. Thus King Henry III. granted to the Hospital of St. John without the Gate at Oxford

the garden of the Jews at Oxford, but he generously reserved to the owners sufficient land wherein to bury their dead. King John gave to the poor of St. Giles's Hospital at Shrewsbury both hands full of every sack of corn brought into the market there, and one handful of every sack of flour. The Knights of St. John of Jerusalem petitioned the King for the grant of the tithes of the parish of Boston in Lincolnshire, and the King was graciously pleased to rob the parish church accordingly, and to make the Knights of St. John receivers of the stolen goods.

Some forms of charity were distinctly economical, and were designed to benefit the hospitals at a minimum of cost to the benefactor. For instance, King Henry III. granted to the Hospital of St. John Baptist at Coventry free licence to the brothers and sisters to go or send any messengers abroad to beg for alms during the space of seven years, and enjoined all persons to defend and assist them. The most thrifty bequest ever made to any hospital was that made by former Kings of England, and confirmed by Henry IV., to the Hospital of St. Giles near Maldon in Essex. The keeper or master thereof was to have towards the maintenance of the leprose burghers of the said town the forfeitures of bread, ale, and fish that were not good and wholesome in the said town of Maldon. It seemed to me very unlikely that a device of such a thrifty and economical character could have been originated by the unaided genius of the English, and I looked to a more northern source for the original of the plan, nor did I look in vain. It was provided, I find, by the Parliament of Scone, in 1386, that "gif ony man bring to the markit corrupt swine or salmond to be sauld, they sall be taken by the Bailies and incontinent without any question at all sall be sent to the lipperfolke, and gif there be no lipperfolke, they sall be destroyed uterlie."

The Ruin of the Medieval Hospitals.

In the course of time, as leprosy died out in the country, the leper houses were put to other uses. In some, the endowment was faithfully applied to other charitable uses. Thus St. Mary Magdalen at Ripon, when no more lepers came there, was devoted to the relief of wayfarers, especially begging clergymen, meaning, no doubt, Franciscan friars, that they should be therein relieved one night with food and a bed, and be gone in the morning. This hospital also dispensed doles to the poor. But in many leper houses, and other hospitals also, the successive visitations ordered from time to time by different kings and bishops disclosed gross abuses. Hospitals intended for the poor dispensed their hospitality to well-to-do people who paid for their accommodation, thus reminding us of the similar transformation of the great public schools and of the hospitals founded in modern days for the reception of the needy insane. The master or warden often became an absentee, and drew his emoluments without performing any duties, so that the hospital fell into decay and neglect; and not only in this but in holding a plurality of such posts the masters of hospitals emulated the parochial clergy. Not only was the income of the hospital spent for the private benefit of the officials, but its capital was raided for the same purpose, so that in less than 40 years the income of St. Leonard's at York diminished by nearly two-thirds.

But the ruin of the mediæval hospitals was the great spoliation by Henry VIII. He began with the

small monasteries, then the great monastic bodies were destroyed, and at length his greed devoured almost every charitable institution in the country. Many of the hospitals were affiliated to religious houses, and these were the first to be robbed. There is no doubt that the monastic constitution of the hospitals, which had been for centuries their safeguard, was now the cause and even the pretext of their ruin. We have seen that many hospitals were in fact collegiate bodies of priests, some with but little charitable function, and some with none at all. Hence they were involved in common ruin with the formally monastic bodies, and the wealth of both went into a common fund for the enrichment of court parasites.

Many municipalities, concerned at this robbery of the poor, petitioned the king to be allowed to re-establish the charities that he had destroyed, and in some instances his Grace was graciously pleased to permit them to make good out of their own corporate funds, or out of their own pockets, the funds that he had stolen. In this way were re-established the great Hospitals of St. Bartholomew in Smithfield and St. Thomas in Southwark; St. Mary of Bethlehem in Moorfields, and many another hospital throughout the country. St. Bartholomew's is still a great and wealthy hospital, with large revenues, and livings in its gift, but it is shorn of most of the ample privileges bestowed upon it by Henry I., who declared that it should have all the privileges and immunities that any church in England enjoyed, and that it should be as free as his own crown; and accordingly he released it from shire and hundred, from suits and pleas and murders, and geld and Danegeld, and hydage and assize, and works at castles or rebuilding of them or of bridges, or enclosing of parks; and carrying of wood and other things, as also from ferdwit, hengwit, wardpan, averpan, blodwite, futwite, childewite, hundredspan, tethinepan, muchbryche, mischeninge, schewinge, fridsocre, westgeiltheof, wardwithe, utterne, fowinge, and withfange.

THE Governor of Mauritius, in a telegram to the Secretary of State for the Colonies received at the Colonial Office on Jan. 4th, states that 10 cases of plague were reported for the week ended Dec. 31st, all of which were fatal.

TINGTURE OF OPIUM AND THE POISONS SCHEDULES.

—At an inquest held by Dr. F. J. Waldo at Southwark upon the body of a woman who had died from heart failure following pneumonia, it came out in the evidence that the deceased had been in the habit of consuming four or five ounces of tincture of opium weekly. In connexion with this and with observations made as to the ease with which narcotics could be purchased, the attention of the jury was called by the coroner to the fact that after Jan. 1st, 1915, tincture of opium would find itself transferred from the second to the first schedule of the Pharmacy Act. The drug as sold would be stronger owing to the issue of the new edition of the British Pharmacopœia, and the signature of the poisons book at each transaction and other precautions and formalities associated with the sale of drugs in the first schedule might be expected to have an effect upon the number of deaths from narcotic poisoning. Dr. Waldo, in summing up, explained and dwelt upon this point, which druggists will have to bear in mind, and also made observations upon the frequency with which in cases of death inquired into by him the habit of taking drugs had been contracted through medical men prescribing them in oriental countries, and through the use of them being continued by the patients afterwards without medical advice. In other instances the habit was first acquired through the easy purchase by the public of quack compounds and advertised "remedies" for disease.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for Month ending Oct. 31st, 1914.

1	2	3	4	5	6	7	8	9	10	11	12
Place.	Correspondent.	Rainfall in milli- metres.	Metric tons of deposit per square kilometre during month.								
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
			Tar.	Carbon- aceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO ₄).	Chlorine (Cl).	Ammonia (NH ₃).
ENGLAND—											
Birmingham, Central ...	Dr. J. Robertson, M.O.H.	39	0.12	4.36	12.37	1.54	4.81	23.20	2.72	0.31	0.09
" Aston ...	"	39	0.04	2.68	2.38	1.17	3.05	9.32	1.25	0.20	0.04
" S.W. ...	"	42	0.04	0.89	1.86	0.83	2.48	5.70	0.91	0.19	0.03
Bolton ...	Dr. J. E. Gould, M.O.H.	72	0.21	1.85	7.52	3.17	8.34	21.10	4.73	0.92	0.15
Exeter ...	Mr. H. Lloyd Parry, Town Clerk.	34	0.04	1.37	3.22	0.68	1.41	6.73	0.76	0.27	0.01
Kingston-upon-Hull ...	Mr. A. R. Tankard, Public Analyst.	58	0.13	3.68	5.44	5.26	7.02	21.53	4.24	1.18	0.01
Liverpool ...	Dr. E. W. Hope, M.O.H.	52	0.19	2.28	9.50	3.13	3.87	18.97	3.03	0.59	0.17
London— Meteorological Office ...	Director, THE LANCET Laboratory.	26	0.08	0.61	1.70	2.13	2.98	7.52	1.62	0.54	0.02
Embankment Gardens...	Mr. J. Ollis, Chief Officer, Public Control Depart- ment, L.C.C.	26	0.14	3.14	4.86	3.80	10.62	22.56	3.13	1.70	0.02
Finsbury Park... ..	"	31	0.08	0.98	2.21	0.68	2.96	6.91	1.28	0.22	0.04
Ravenscourt Park ...	"	22	0.03	0.78	1.46	0.57	1.51	4.35	0.74	0.25	0.06
Southwark Park ...	"	31	0.02	3.98	6.48	1.07	5.33	16.88	2.93	0.47	0.06
Wandsworth Common ...	"	29	0.03	1.64	3.16	0.70	3.45	8.98	1.76	0.37	0.03
Victoria Park ...	"	19	0.06	1.23	1.96	1.56	4.56	9.37	2.05	0.28	0.05
Golden Lane ...	Dr. W. J. Howarth, M.O.H.	26	0.06	3.30	5.24	1.53	3.58	13.71	2.39	0.45	0.13
Malvern ...	Mr. W. Osborne Thorpe, Engineer U.D.C.	36	NIL.	0.20	0.22	0.50	0.79	1.72	0.43	0.19	0.02
Manchester— Cheadle ...	Mr. J. Warrington, Secretary, Air Pollution Advisory Board.	29	0.05	1.98	2.19	2.20	6.48	12.30	3.17	1.18	0.02
Davyhulme ...	"	39	0.02	1.41	4.69	0.51	4.12	10.75	2.61	0.35	0.08
Fallowfield ...	"	38	0.06	1.50	4.78	0.91	4.25	11.50	2.53	0.51	0.04
School of Technology ...	"	42	0.12	5.04	9.12	1.26	4.41	19.95	2.94	0.52	0.06
Whitefield... ..	"	56	0.03	1.36	4.83	0.59	5.77	12.58	3.32	0.39	0.04
Newcastle-on-Tyne ...	Dr. H. Kerr, M.O.H.	42	0.18	3.74	5.78	1.91	4.15	16.47	2.34	0.60	0.13
Oldham ...	Dr. J. B. Wilkinson, M.O.H.	62	0.62	6.65	15.80	1.49	4.47	29.00	2.54	0.44	0.29
Sheffield— Attercliffe Burial Ground	Prof. W. P. Wynne, The University.	51	0.27	4.78	8.73	1.58	6.85	22.21	3.08	1.76	0.16
Hillsborough Park ...	"	49	0.06	1.49	4.04	1.26	3.79	10.64	2.22	0.76	0.04
Meersbrook Park ...	"	56	0.13	1.43	3.38	0.72	4.74	10.40	1.97	0.86	0.04
Weston Park ...	"	50	0.11	1.53	3.03	1.45	4.30	10.42	2.58	0.74	0.04
York... ..	Dr. E. M. Smith, M.O.H.	41	0.08	1.43	3.08	1.49	1.83	7.91	1.48	0.46	0.28
SCOTLAND—											
Greenock * ...	—	—	—	—	—	—	—	—	—	—	—
Leith ...	Mr. Thomas Bishop, Sanitary Inspector.	44	0.08	2.40	4.72	1.14	3.86	12.20	1.80	0.53	0.09
Paisley ...	Mr. W. W. Kelso, Sanitary Inspector.	36	0.14	2.89	3.21	2.01	2.15	10.40	1.40	0.25	0.08
Coatbridge ...	Mr. A. G. Dutch, Chief Sanitary Inspector.	41	0.05	1.12	2.30	0.56	1.73	5.76	0.90	0.21	0.05

* No returns to date.

Col. 4 includes all matter insoluble in water but soluble in CS₂. Col. 5 includes all combustible matter insoluble in water and in CS₂. Col. 6 includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (a) Approx. 91b. per acre; (b) 2.56 English tons per sq. mile; (c) one gramme per sq. metre; (d) 1/1000 millimetre of rainfall (see Col. 3).

The analytical work involved in the above return was undertaken respectively by J. F. Liversidge, F.I.C., Birmingham; Harry Hurst, B.Sc., F.I.C., Bolton; F. Southerden, B.Sc., F.I.C., Exeter; A. R. Tankard, F.I.C., Kingston-upon-Hull; W. H. Roberts, M.Sc., F.I.C., Liverpool; S. A. Vasey, F.I.C., Director, THE LANCET Laboratory (London Meteorological Office collections); J. H. Coste, F.I.C. (Embankment Gardens, Finsbury Park, Ravenscourt Park, Southwark Park, Wandsworth Common, Victoria Park collections), London; F. L. Teet, D.Sc., Golden-lane, London, E.C.; C. C. Duncan, F.I.C., Malvern; E. Knecht, Ph.D., M.Sc., Cheadle, Davyhulme, Fallowfield, School of Technology, University, Whitefield (Manchester collections); J. J. Dunn, D.Sc., Newcastle-on-Tyne; Professor W. P. Wynne, Attercliffe Burial Ground, Hillsborough Park, Meersbrook Park, Weston Park (Sheffield collections); S. H. Davies, M.Sc., York; J. W. Biggart, F.I.C., Greenock; A. Scott Dodd, B.Sc., F.I.C., Leith and Paisley; Messrs. R. R. Tatlock and Thomson, Coatbridge. The correspondents referred to in col. 2 are for the most part public health authorities.

EDINBURGH ROYAL INFIRMARY.—The report by the managers of the Royal Infirmary, Edinburgh, shows that the total number of in-patients during the year ending Oct. 1st, 1914, was 12,818. Of these 4286 were medical cases and 7782 surgical. The average daily number of in-patients was 847. The highest number of patients on any one date was 887 and the lowest 706. The annual general meeting of the Court of Contributors to the Royal Infirmary was held on Jan. 4th, Lord Provost Inches presiding. The Lord Provost said that 359 sailors and soldiers had been treated in the infirmary since the outbreak of war, and it was expected that another 100 cases would be received during the next few days. In addition to the actual soldiers

treated, there had passed through the infirmary wards a considerable number of recruits who suffered from varicose veins, hernia, and other conditions calling for operative treatment before these men could be accepted for military service. The surgeons were still treating cases of this nature, and in fact they were being admitted daily. Sir Joseph Fayrer has been relieved of his duties at the infirmary in order that he might take charge of the Second Scottish Hospital at Craigleith, and Dr. R. McKenzie Johnston has been appointed interim superintendent. The managers record their deep regret that Professor John Wyllie should have found it necessary through ill-health to resign his appointment as physician to the infirmary.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned have been granted temporary Commissions as Surgeon in His Majesty's Fleet:—Thomas Stothart Farries and John Alexander Thompson (dated Dec. 29th, 1914).

ROYAL NAVAL VOLUNTEER RESERVE.

The following appointment has been notified:—Surgeon Probationer: J. S. Webster to the *St. George*, additional, for the *Rother*.

ROYAL ARMY MEDICAL CORPS.

Charles Vincent Mackay to be temporary Major (dated Dec. 2nd, 1914).

Lieutenant Ernest R. Walker relinquishes his temporary commission (dated Dec. 9th, 1914). Lieutenant Donald Aucutt relinquishes his commission (dated Nov. 25th, 1914).

The undermentioned to be temporary Lieutenants:—Dated Sept. 3rd, 1914: Arthur Martin Leake, V.C. Dated Sept. 23rd, 1914: Frank Dallimore. Dated Oct. 1st, 1914: Philip Heinrich Bahr. Dated Oct. 10th, 1914: Owen Richards. Dated Oct. 24th, 1914: Alfred George Stewart. Dated Nov. 17th, 1914: James Anthony Delmege. Dated Nov. 22nd, 1914: John Cuthbert Matthews. Dated Nov. 25th, 1914: Hugh Hercus Cavendish Fuller. Dated Nov. 27th, 1914: Charles Aloysius Kenny. Dated Dec. 10th, 1914: William Hugh Steele and Allan Read Wilson. Dated Dec. 11th, 1914: Noel Ravenhill Rawson. Dated Dec. 14th, 1914: Donald John Gollan Grant, Richard Till Worthington, and James McKee Ferguson. Dated Dec. 15th, 1914: William Brown, James Maud Rishworth, and Wilfrid Robert Pagen. Dated Dec. 16th, 1914: Rhys Vaughan Powell, John Cornock Hawkes, James Jack, Edward Sandwith Johnson, William John Henry, William Readman, Harold Wachter, Erskine Herbert Worth, Charles Thompson Bishop, Herbert Roycroft Ford, John Bruce Low, Alexander Mearns, Ernest Godfrey Wheat, Walter William Hallchurch, Edward Seymour Chapman, Matthew James Johnston, John Duffin, Robert Best Jackson, Francis Joseph Ord King, Edward Percival Hadden Vickery, Eric Alfred Lumley, John William Grice, John Grimson Moseley, William Ernest Graves, Oswald Arnold Gee, Eric Alfred Wright, Edward Henry Allon Pask, George Macleod, Douglas Elder, James Johnston Sinclair, and Samuel Burnside Boyd Campbell. Dated Dec. 18th, 1914: Edward Loggie Middleton, Edward Ernest Hobson, Leslie Ellis Pimm, Samuel Lyle, Geoffrey Richard Heard, John Bertram McCabe, William McHutchison Binning, Evan Evans, Edmund Christie Fawcett, John Chisholm, and James Lee. Dated Dec. 20th, 1914: Francis Graham Crookshank and Thomas James Logan Thompson.

The undermentioned to be temporary Captains whilst serving with the Duchess of Westminster's War Hospital:—Dated Jan. 6th: Charles Samuel Myers and Thomas Munn Body.

The undermentioned cadets and ex-cadets of the Officers Training Corps to be Lieutenants (on probation):—Dated August 17th, 1914: David Stanley Martin. Dated Nov. 30th, 1914: John George Bennett. Dated Dec. 7th, 1914: George Brownrigg Hadden and Hallows Lloyd Addison.

The undermentioned to be Lieutenants (on probation):—Dated Nov. 10th, 1914: Robert Alexander Anderson. Dated Nov. 27th, 1914: William Morris Lansdale. Dated Nov. 30th, 1914: Thomas Pollock Inglis and Francis Claud Lapage. Dated Dec. 4th, 1914: James Francis Quigley. Dated Dec. 7th, 1914: Francis Joseph Hallinan. Dated Dec. 15th, 1914: Howell Meyrick Williams. Dated Dec. 18th, 1914: Henry Parkes Whitworth.

The undermentioned are granted temporary rank whilst serving with the Australian Medical Unit: To be Major: Edward Thomas Thring. To be Captain: Walter Seymour Armstrong.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain Morton W. Ruthven is placed temporarily on the Half-pay List on account of ill-health.

TERRITORIAL FORCE.

Army Medical Services.

Captain John J. H. Beckton to be a Deputy Assistant Director of Medical Services of the South Midland Territorial Division, vice Major James W. Jennings, D.S.O., who vacates the appointment.

Royal Army Medical Corps.

2nd South-Western Mounted Brigade Field Ambulance: Captain Henry N. Barnett to be Major (temporary). To be Lieutenants: Philip Stanley Martin, Harold Burnet Porteous, and Bertram Michell Young.

2nd Northern General Hospital: Alfred Richardson to be Captain, whose services will be available on mobilisation.

Welsh Border Mounted Brigade Field Ambulance: To be Captains: Lieutenant Robert F. Gerrard (temporary) and David William Reese (late Captain, Northern Bengal Mounted Rifles).

2nd East Lancashire Field Ambulance: To be Lieutenants: George Robert Hitchin and William Joshua Cowan.

3rd East Lancashire Field Ambulance: To be Lieutenants: James Cowan and Frederic Battinson Smith.

2nd West Lancashire Field Ambulance: Captain Owen H. Williams to be seconded. To be Lieutenants: James Herbert Rawlinson, Edward Mansfield, George Charles King, and Leonard Sadgrove Gaskell.

5th London Field Ambulance: Captain William C. Macaulay to be Major (temporary).

2nd North Midland Field Ambulance: The undermentioned Lieutenants to be Captains (temporary): Claude M. Cowper and Alfred C. F. Turner.

2nd Welsh Field Ambulance: John Hargreaves Robinson to be Lieutenant.

4th London General Hospital: Robert Knox to be Captain, whose services will be available on mobilisation. David Ernest Stephens Davies to be Lieutenant.

1st Lowland Field Ambulance: Lieutenant Neil MacInnes to be Captain (temporary).

Lowland Mounted Brigade Field Ambulance: Major James Bruce to be Lieutenant-Colonel (temporary). To be Majors (temporary): Captain Farquhar Gracie and Captain Robert Y. Anderson. Edward Napier Thomson (late Cadet, Glasgow University Contingent, Senior Division, Officers Training Corps) to be Lieutenant.

1st Western General Hospital: Ernest Edward Glynn to be Captain, whose services will be available on mobilisation.

1st London (City of London) Sanitary Company: Captain Heaver S. Fremlin to be Major (temporary).

2nd London Sanitary Company: Captain Arthur J. Martin to be Major (temporary). To be Lieutenants: Kenneth MacLennan and John Henry Noel Price.

3rd West Riding Field Ambulance: Herbert Harry Emmerson (late Captain, West Riding Divisional Engineers) to be Captain.

3rd London General Hospital: Major Arthur E. J. Barker is seconded. Major James E. Lane is restored to the establishment.

West Lancashire Casualty Clearing Station: Captain George C. E. Simpson, from 2nd West Lancashire Field Ambulance, to be Captain.

1st Home Counties Field Ambulance: Captain Thomas H. Peyton to be Major (temporary). John Samuel Ward to be Lieutenant.

2nd Home Counties Field Ambulance: Captain George T. Willan to be Major (temporary).

3rd Home Counties Field Ambulance: Captain Hector G. G. Mackenzie to be Major (temporary). To be Lieutenants: Milward Cecil Hayward, Henry Wood Wier (late Cadet, Edinburgh University Contingent, Senior Division, Officers Training Corps), and Edgar William Matthews.

2nd Northumbrian Field Ambulance: To be Lieutenants: Thomas William Crowley and Arthur Edwin Tait.

1st Wessex Field Ambulance: Captain Francis D. Blandy, from Attached to Units other than Medical Units, to be Captain.

4th Northern General Hospital: Basil Hugh Campbell Lea-Wilson to be Captain, whose services will be available on mobilisation.

Sanitary Service: Lieutenant-Colonel and Honorary Surgeon-Colonel William Robert Smith, retired list, Territorial Force, to be Lieutenant-Colonel (temporary).

East Lancashire Casualty Clearing Station: Lieutenant Thomas B. Wolstenholme to be Captain (temporary).

2nd East Anglian Field Ambulance: Arthur William Hayward to be Lieutenant.

3rd East Anglian Field Ambulance: Lieutenant Leonard R. Toswill to be Captain (temporary). To be Lieutenants: Laurence Henry Hutchins and Edward Coomber Hobbs.

Attached to Units other than Medical Units.—To be Majors (temporary): Captain George P. Chappel and Captain William G. Sutcliffe. Lieutenant Charles S. Wink to be Captain (temporary). To be Captains: Surgeon-Captain Ernest Solly, retired list (late 5th Battalion, The Prince of Wales's Own (West Yorkshire Regiment)), and Lieutenant Arthur Scott Turner.

To be Lieutenants: Norman Preston Laing, Ralph Austin Burditt, John Herbert Jordan, Samuel Rutherford, Robert Lyall Guthrie, Frederick Hunton, Tom Ramsden Kenworthy (late Cadet Corporal, Leeds University Contingent, Senior Division, Officers Training Corps), George Eustace, James Hornidge Chauncy, Frank Greenhalgh Prestwich (late Second Lieutenant, 7th Battalion, the Lancashire Fusiliers), and Percy Herbert Burton.

Officers Training Corps.

Royal College of Surgeons in Ireland Contingent, Senior Division: Second Lieutenant John S. Pegum to be Lieutenant (temporary).

University of London Contingent, Senior Division: Second Lieutenant Bernard F. Armitage, from the Cambridge University Contingent, Senior Division, Officers Training Corps, to be Second Lieutenant, for service with the Medical Unit.

THE NEW YEAR HONOURS.

Major Samuel Rickard Christophers, I.M.S., and Colonel George William Patrick Dennys, I.M.S., have been made C.I.E.'s; and Major James Husband, I.M.S., has received the Kaisar-i-Hind gold medal. In the new Order of the Military Cross for distinguished and meritorious services awards have been made to Captain H. Stewart, R.A.M.C., Captain E. D. Caddell, R.A.M.C., Lieutenant C. Helm, R.A.M.C., Lieutenant (temporary) E. J. Wyler, R.A.M.C., Captain J. F. Murphy, R.A.M.C., Special Reserve, and Captain Kanwar Indarjit Singh, I.M.S. The Indian Order of Merit of the Second Class has been conferred on Senior Sub-Assistant Surgeon Pandit Shanker Dass (attached) "for cool courage in attending wounded under heavy fire at Neuve Chapelle."

DEATHS IN THE SERVICES.

Colonel David Douglas Cunningham, C.I.E., I.M.S. Bengal (retired), at Torquay, in his seventy-second year. He joined the Bengal Medical Service in 1869 and served from 1874 as special assistant to the Sanitary Commissioner with the Government of India. From 1879 to 1897, the year in which he retired, he was professor of physiology in the Calcutta Medical College and was actively associated with the late Sir George King in researches with regard to quinine, which subsequently resulted in an inexpensive process of manufacture. In 1886 he accompanied the Tibet Expedition as Government naturalist. He was granted the honorary rank of colonel in 1907. Colonel Cunningham was an honorary physician to the King.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 9261 births and 7395 deaths were registered during the week ended Saturday, Jan. 2nd. The annual rate of mortality in these towns, which had been 15.7, 16.1, and 14.0 per 1000 in the three preceding weeks, rose in the week under notice to 21.3 per 1000 of their aggregate population, estimated at 18,120,059 persons in the middle of 1914. During the 13 weeks of the quarter just ended the mean annual death-rate in these towns averaged 14.9, against a corresponding rate of 15.3 per 1000 in London. The annual death-rate last week ranged from 8.6 in Bournemouth, 10.6 in Oxford, 12.2 in Acton, 12.3 in Hornsey, 13.0 in Lincoln, and 13.1 in Darlington, to 27.5 in Liverpool, 27.7 in Newcastle-on-Tyne, 30.8 in Wigan, 32.1 in St. Helens, and 33.1 in Grimsby.

The 7395 deaths from all causes were 2513 in excess of the number in the previous week, and included 575 which were referred to the principal epidemic diseases, against 465 and 411 in the two preceding weeks. Of these 575 deaths, 269 resulted from measles, 89 from diphtheria, 86 from infantile diarrhoeal diseases, 80 from whooping-cough, 31 from scarlet fever, and 20 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases was equal to 1.7, against 1.2 per 1000 in the previous week. The deaths attributed to measles, which had been 181, 210, and 175 in the three preceding weeks, rose to 269 last week, and caused the highest annual death-rates of 3.1 in Newcastle-on-Tyne, 3.7 in Plymouth and in Merthyr Tydfil, 4.1 in St. Helens, 4.2 in Huddersfield, 5.1 in Wigan, 5.5 in Devonport, and 8.0 in Grimsby. The deaths referred to diphtheria, which had been 62, 70, and 66 in the three preceding weeks, rose to 89 last week, and included 26 in London, 8 in Birmingham, 4 each in Liverpool and Cardiff, and 3 each in Norwich, Manchester, Bradford, Sheffield, and Darlington. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 71, 81, and 70 in the three preceding weeks, rose to 86 last week, of which 27 occurred in London, 7 in Liverpool, and 6 each in Birmingham and Manchester. The deaths attributed to whooping-cough, which had steadily increased from 35 to 58 in the six preceding weeks, further rose to 80 last week, and included 10 in London, 9 in Bristol, 5 in Newcastle-on-Tyne, and 4 each in Willesden, Nottingham, and Bootle. The deaths referred to scarlet fever, which had been 48, 34, and 30 in the three preceding weeks, were 31 last week, of which 10 belonged to London, 4 to Liverpool, and 2 to Sheffield. The fatal cases of enteric fever, which had been 17, 14, and 12 in the three preceding weeks, rose to 20 last week, and included 4 in London and 2 each in Portsmouth and Salford.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the

London Fever Hospital, which had declined from 5035 to 4583 in the five preceding weeks, had further fallen to 4503 on Saturday last; 436 new cases were admitted during the week, against 504, 451, and 348 in the three preceding weeks. These hospitals also contained on Saturday last 1686 cases of diphtheria, 70 of enteric fever, 59 of measles, and 40 of whooping-cough, but not one of small-pox. The 2050 deaths from all causes in London were 941 in excess of the number in the previous week, and corresponded to an annual death-rate of 23.7 per 1000. The deaths referred to diseases of the respiratory system, which had been 316, 314, and 270 in the three preceding weeks, rose to 562 in the week under notice, and were 282 in excess of the number recorded in the corresponding week of last year.

Of the 7395 deaths from all causes in the 97 towns, 299 resulted from different forms of violence and 727 were the subject of coroners' inquests, while 1915 occurred in public institutions. The causes of 80, or 1.1 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 66 other smaller towns. Of the 80 uncertified causes, 20 were registered in Liverpool, 19 in Birmingham, 6 in London, 4 in Sheffield, and 3 each in Stoke-on-Trent, Bootle, and Preston.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns 952 births and 791 deaths were registered during the week ended Saturday, Dec. 26th, 1914. The annual rate of mortality in these towns, which had been 18.3, 17.7, and 18.0 per 1000 in the three preceding weeks, was again 18.0 per 1000 in the week under notice. During the first 12 weeks of last quarter the mean annual death-rate in these towns averaged 16.5, against a corresponding rate of 14.4 per 1000 in the 97 large English towns. Among the several towns the death-rate in the week ranged from 5.1 in Kirkcaldy, 10.7 in Perth, and 10.8 in Hamilton, to 19.8 in Glasgow, 20.7 in Greenock, and 22.2 in Dundee and in Aberdeen.

The 791 deaths from all causes were equal to the number in the previous week, and included 77 which were referred to the principal epidemic diseases, against 76 and 81 in the two preceding weeks. Of these 77 deaths, 23 resulted from whooping-cough, 16 from diphtheria, 15 from scarlet fever, 12 from infantile diarrhoeal diseases, 5 from measles, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.8, against 1.2 per 1000 in the 97 large English towns. The deaths attributed to whooping-cough, which had steadily increased from 7 to 35 in the six preceding weeks, declined to 23, of which 21 were registered in Glasgow and 5 in Dundee. The deaths referred to diphtheria, which had been 20, 16, and 9 in the three preceding weeks, rose to 16, and included 5 each in Glasgow and Aberdeen, and 2 each in Edinburgh and Dundee. The fatal cases of scarlet fever, which had been 15, 14, and 17 in the three preceding weeks, fell to 15, and included 8 in Glasgow and 5 in Aberdeen. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 10, 8, and 15 in the three preceding weeks, fell to 12, of which 8 belonged to Glasgow. The 5 deaths referred to measles were 2 in excess of the average in the earlier weeks of the quarter, and comprised 4 in Dundee and 1 in Aberdeen. The fatal case of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 163, 154, and 169 in the three preceding weeks, further rose to 175 in the week under notice; 36 deaths resulted from different forms of violence, against 23 and 36 in the two preceding weeks.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of 1914, 1098 births and 899 deaths were registered during the week ended Saturday, Jan. 2nd. The annual rate of mortality in these towns, which had been 17.7, 18.0, and 18.0 per 1000 in the three preceding weeks, further rose to 20.5 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these towns averaged 16.8, against a corresponding rate of 14.9 per 1000 in the 97 large English towns. The annual death-rate last week ranged from 7.7 in Perth, 8.8 in Kilmarnock, and 8.9 in Kirkcaldy, to 23.9 in Glasgow, 27.4 in Greenock, and 30.2 in Dundee.

The 899 deaths from all causes were 108 in excess of the number in the previous week, and included 98 which were referred to the principal epidemic diseases, against 81 and 77 in the two preceding weeks. Of these 98 deaths, 44 resulted from whooping-cough, 17 from scarlet fever, 14 from diphtheria, 11 from infantile diarrhoeal diseases, 10 from measles, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.2, against 1.7 per 1000 in the 97 large English towns. The deaths attributed to

whooping-cough, which had been 32, 35, and 28 in the three preceding weeks, rose to 44 last week, and included 27 in Glasgow, 6 in Dundee, 4 in Clydebank, 3 in Greenock, and 2 in Motherwell. The deaths referred to scarlet fever, which had been 14, 17, and 15 in the three preceding weeks, rose to 17 last week, of which 6 were registered in Glasgow, 5 in Aberdeen, and 3 in Paisley. The fatal cases of diphtheria, which had been 16, 9, and 16 in the three preceding weeks, fell to 14 last week, and included 4 in Edinburgh, 3 in Glasgow, and 2 each in Aberdeen and Motherwell. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 8, 15, and 12 in the three preceding weeks, were 11 last week, of which 4 belonged to Dundee and 3 to Glasgow. The 10 deaths referred to measles were 7 above the average in the earlier weeks of the quarter, and included 8 in Dundee. The 2 fatal cases of enteric fever were registered in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 154, 169, and 175 in the three preceding weeks, further rose to 210 in the week under notice; 42 deaths resulted from various forms of violence, against 36 in each of the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland 383 births and 393 deaths were registered during the week ended Saturday, Dec. 26th, 1914. The annual rate of mortality in these towns, which had steadily increased from 17.7 to 21.8 per 1000 in the six preceding weeks, fell to 17.0 per 1000 in the week under notice. During the first 12 weeks of last quarter the mean annual death-rate in these towns averaged 18.0, against corresponding rates of 14.4 and 16.5 per 1000 in the English and Scotch towns respectively. The annual death-rate during the week was equal to 16.4 in Dublin (against 12.8 in London and 19.8 in Glasgow), 22.0 in Belfast, 14.3 in Cork, 11.4 in Londonderry, 13.5 in Limerick, and 9.5 in Waterford, while in the 21 smaller towns the mean death-rate was 12.5 per 1000.

The 393 deaths from all causes were 110 fewer than the number in the previous week, and included 32 which were referred to the principal epidemic diseases, against 43 and 46 in the two preceding weeks. Of these 32 deaths, 9 resulted from measles, 9 from infantile diarrhoeal diseases, 5 from whooping-cough, 3 each from scarlet fever, diphtheria, and enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.4, against corresponding rates of 1.2 and 1.8 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 8, 12, and 8 in the three preceding weeks, numbered 9, and were all registered in Belfast. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 12, 17, and 15 in the three preceding weeks, fell to 9, of which 5 occurred in Dublin. The fatal cases of whooping-cough, which had been 4, 3, and 5 in the three preceding weeks, were again 5, and were all recorded in Belfast. The deaths attributed to scarlet fever, which had been 8, 8, and 10 in the three preceding weeks, fell to 3, but showed no excess in any town. The 3 deaths referred to enteric fever, of which 2 occurred in Dublin and 1 in Sligo, were equal to the average in the earlier weeks of the quarter. Of the 3 fatal cases of diphtheria, 2 were recorded in Dublin and 1 in Cork.

The deaths referred to diseases of the respiratory system, which had been 90, 120, and 105 in the three preceding weeks, further fell to 96 in the week under notice. Of the 393 deaths from all causes, 97, or 25 per cent., occurred in public institutions, and 9 resulted from various forms of violence. The proportion of uncertified causes of death was equal to 4.1, against 1.1 per cent., in the 97 English towns.

In the 27 town districts of Ireland with an aggregate population estimated at 1,205,280 persons at the middle of 1914, 649 births and 643 deaths were registered during the week ended Saturday, Jan. 2nd. The annual rate of mortality in these towns, which had been 21.1, 21.8, and 17.0 per 1000 in the three preceding weeks, rose to 27.8 per 1000 in the week under notice. During the 13 weeks of the quarter just ended the mean annual death-rate in these towns averaged 18.8, against corresponding rates of 14.9 and 16.8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 35.2 in Dublin (against 23.7 in London and 23.9 in Glasgow), 23.1 in Belfast, 30.6 in Cork, 22.8 in Londonderry, 28.4 in Limerick, and 51.3 in Waterford, while in the 21 smaller towns the mean rate did not exceed 19.5 per 1000.

The 643 deaths from all causes were 250 in excess of the number in the previous week, and included 42 which were referred to the principal epidemic diseases, against 46 and 32 in the two preceding weeks. Of these 42 deaths, 10 resulted from infantile diarrhoeal diseases, 9 each from measles and scarlet fever, 7 from whooping-cough, 4 from enteric fever, and 3 from diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.8, against 1.7 and 2.2 per 1000 in the

English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 17, 15, and 9 in the three preceding weeks, were 10 last week, of which 8 were registered in Dublin. The deaths referred to measles, which had been 12, 8, and 9 in the three preceding weeks, were again 9 last week, and comprised 8 in Belfast and 1 in Queenstown. The fatal cases of scarlet fever, which had been 8, 10, and 3 in the three preceding weeks, rose to 9 last week, and included 4 in Waterford and 2 each in Dublin and Belfast. The 7 deaths attributed to whooping-cough, of which 4 occurred in Dublin and 2 in Belfast, were 3 in excess of the average in the earlier weeks of the quarter. Of the 4 deaths referred to enteric fever, 2 each were registered in Dublin and Belfast. The 3 fatal cases of diphtheria included 2 in Dublin and 1 in Belfast, and were equal to the average in the earlier weeks of the quarter. In addition to the above, a death from typhus occurred in Waterford.

The deaths referred to diseases of the respiratory system, which had been 120, 105, and 96 in the three preceding weeks, rose to 162 in the week under notice. Of the 643 deaths from all causes, 196, or 30 per cent., occurred in public institutions, and 7 resulted from different forms of violence. The causes of 37, or 5.8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 English towns the proportion of uncertified causes did not exceed 1.1 per cent.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Licence Fees of Mobilised Medical Men.

A DELEGATION from the Société Centrale and from the Association Générale des Médecins de France attended recently at the office of direct taxation at the Ministry of Finance to call attention to the situation of mobilised doctors in regard to their licence fees during the years 1914 and 1915. It was stated in reply to the delegation's representations that it was impossible to make any abatement for 1914, but that mobilised medical men whose usual residence was in Paris would not appear on the register of practitioners for 1915 or during the period of hostilities, and that provincial practitioners should apply to the director of direct taxation of the province for a discharge, which would be favourably considered in every case. This measure is indeed only just. In Paris, especially, all the medical men have to pay for their licence to practice a heavy fee in proportion to their rent. Since, however, during mobilisation their emoluments are entirely inadequate to compensate them for the loss caused by the abandonment of their practice, it is not right that they should be called on to pay the fee for their licence.

Hygiene in War Devastated Areas.

In the fighting area and in regions under military occupation hygienic knowledge is indispensable. When the dispossessed inhabitant returns to his village a great danger arises from the sources of contamination that every battle or the long occupation by troops leaves behind. It is necessary, therefore, that all such country should be purified, for the sources of infection are innumerable. A deputy from the Ardennes, Dr. Doisy, who has returned from a visit to the battle area of the Marne, gave an address on this subject in a conference organised by the Alliance d'Hygiène Sociale. He pointed out that the first difficulty encountered by the military sanitary service had consisted in the vastness of modern battlefields; another in the season of the year and the high temperature which still prevailed at the beginning of September. This explained why the burials had been conducted in such an inadequate manner, why disinfectants gave out, and why it was now necessary to secure protection against grave dangers. This whole region of bloody battlefields must be visited and probed

to make sure that no corpses remained unburied. Imperfect burials are a source of great danger by polluting springs and wells. For a long time the inhabitants must use only boiled water or water sterilised by the addition of hypochlorite of lime. The graves must be visited and covered with lime, and should even be surrounded by a deep trench containing lime. The fields of battle also must be sprinkled with disinfectants, for they are still covered with *débris* of all kinds. The dwellings that have been occupied by the enemy have the floors of the houses and the soil of the garden still strewn with foul *débris*. The pollution of the waters and the dust raised in cleaning up are also to be feared. The Bureau of Hygiene in the Ministry of the Interior has given the prefects the necessary instructions. Rigid surveillance of food-stuffs, milk and meat, must be practised. For the rebuilding of the destroyed dwellings it will be necessary at first to raise shelters, for often the basements are all that remain for those who return. Later, when the villages are rebuilding it will be necessary to watch the cubic air space allowed for the rooms, and the height of the buildings, and to see that acknowledged necessary modifications are introduced. Attention must also be paid to prophylaxis and treatment of disease, and to disinfection, for epidemics are especially to be feared among those in a lowered state of health. Attention to these matters is urgently demanded.

A Gift in Memory of Dr. Reymond.

Madame Reymond, widow of the Senator Dr. Reymond, a *médecin-major* of the 1st Class, who was mortally wounded during an aeroplane reconnaissance,¹ has offered to the Army the flying machine with which that heroic officer practised during peace time. The offer has been accepted.

Obituary Notes.

Professor Alfred Fournier died recently at the age of 81. During his long career he added lustre to the chair of the dermatological clinic at the Hôpital Saint Louis. A pupil of Ricord, he devoted himself to the study and treatment of syphilis. His descriptions of this disease, hereditary or acquired, are perfect. His entire teaching concerning the effects of the disease on the different organs, and especially on the nervous centres, remains correct to this day. He pointed out the specific character of locomotor ataxy and established the certainty of a similar origin for progressive general paralysis. By making known their origin Fournier showed how to avoid them. At the Hôpital Saint Louis he founded a school, organised a remarkable museum, and collected a huge number of precious specimens.—Last week also died another highly esteemed medical man whose name will live in French science, Dr. Lucien Jacquet. He was physician to the Hôpital Saint Antoine and a specialist in dermatology, and had published important works on diseases of the skin. He demonstrated that alopecia was not an infectious disease, but a trophic disturbance affecting the nerves and local nutrition. He devised a method for combating baldness, wrinkles, fatigue, and premature senility. He made investigations into the importance of thorough mastication. He had recently applied his methods to the alleviation of fatigue in troops after prolonged marches. For 20 years he carried on an intelligent and discriminating campaign against alcoholism.

Jan. 4th.

¹ THE LANCET, Oct. 31st, 1914, p. 1065.

Correspondence.

"*Audi alteram partem.*"

CRIMINAL ABORTION AND PROFESSIONAL SECRECY.

To the Editor of THE LANCET.

SIR,—In your last issue you raised a very important and delicate question in a leading article relating to the action of a medical practitioner as regards cases of abortion which may come under his professional care. In considering this subject it is well to bear in mind that abortion from natural causes is an extremely common occurrence, and that cases of criminal abortion are fortunately of rare occurrence. Every medical practitioner attending a case of abortion is perfectly justified in regarding the case as one of natural abortion unless he has definite objective evidence to the contrary, which he can see for himself without asking any questions. In attending a case of abortion where there is no conclusive objective evidence of criminal interference the medical practitioner will be wise to regard the case as one of natural abortion, and any questioning on his part as to the possibility of any criminal cause is most strongly to be deprecated. It is undoubtedly the medical man's duty to do the best he can for his patient, and any action on his part in the nature of detective inquiry is to be condemned. The medical practitioner will wisely refrain from putting questions to his patient or receiving information from her which will throw upon him the difficult burden of "professional secrecy."

If a patient desires on her own account to disclose certain facts it would be wise for the medical practitioner to caution his patient, and to allow her to take such steps on legal advice as she thinks fit, provided, of course, that her health is not endangered. There is no need for the practitioner to be a party to these proceedings.

A class of case sometimes occurs where the medical practitioner cannot play a passive part. I refer to cases of abortion where there is conclusive objective evidence of criminal interference. Several such cases have come to my notice. Examples of such cases are as follows. Visible perforating wounds of the cervix uteri or of the roof of the vagina. Marked signs of the action of a corrosive agent on the cervix uteri or vagina. Perforating wounds of the uterus or vagina revealed at operation on the patient. In cases of this kind the medical practitioner who takes no steps at all is unwisely throwing upon himself a grave responsibility which may lead to serious trouble to others as well as to himself. In such cases the medical practitioner should insist on consultation with a specialist, and if they jointly agree that there is conclusive objective evidence of criminal interference, irrespective of any statements made by the patient, then undoubtedly some steps must be taken—e.g., in a desperate case, where there was no hope of recovery on the part of the patient, opportunity should be given the patient of making a dying declaration. In less desperate cases, provided only that this procedure is not detrimental to the health of the patient, the legal authorities should be informed and opportunity given for a statutory deposition to be taken. In every case the health and possible recovery of the patient should occupy

the foremost place, and the medical practitioner in charge of a patient will be right in permitting no steps to be taken which are dangerous to her life or detrimental to her condition of health.

In cases of abortion where, after consultation with a specialist, it is decided that there is conclusive objective evidence of criminal interference, quite irrespective of any statements made by the patient, then there is no doubt that the duty rests with the medical practitioner to inform the legal authorities. His duty to the public and to himself must, I think, in such cases override any obligation of secrecy arising out of the confidential relationship to which a doctor stands towards a patient.

I am, Sir, yours faithfully,

W. H. WILLCOX, M.D., F.R.C.P.

Welbeck-street, W., Jan. 5th, 1915.

INSOMNIA AND SUICIDE.

To the Editor of THE LANCET.

SIR,—The paper by Mr. C. E. Pronger under the above title in your issue of Dec. 12th, 1914, has brought into prominence what some of us have been preaching for years, and it has seemed as if the preaching were in vain. The medical profession allows that there is such a thing as eyestrain, and that the correction of errors of refraction may cure headaches, and there many appear to stop, and do not realise that if eyestrain can cause headaches, why not also numerous other forms of reflex irritation or waste of nerve energy—in fact, any “functional” nerve disorder? When some years ago Gould, of Philadelphia, published his “Biographic Clinics” and illustrated the enormous harm that uncorrected astigmatism could do and had done, he was laughed at and called a madman, and yet those who have followed in his footsteps look up to him as a pioneer in ophthalmology second only to the great Donders.

If small errors of refraction may play such an important rôle it will be surely asked why the profession generally have not accepted the fact, and the answer is because a large majority of the *oculists* themselves have not done so. They laugh at the man who corrects 0.12 D. of astigmatism or 0.25 D. of anisometropia, and almost infer that he is “next door” to a quack. We are so conservative in the medical profession and forget that the only form of conservatism for us is to conserve what is good. As soon as one of us opens a new door and lets in a new light it seems as if the whole profession did their best to close the door instead of helping to open it wider.

The explanation of this attitude is not far to seek in the subject under discussion. It is that the “older school” have failed to recognise the paramount importance of the use of cycloplegics in this particular work. Very low errors of astigmatism or of anisometropia, such as 0.12 D., 0.25 D., 0.37 D., and possibly 0.5 D. play the chief rôle in causing nervous disorder in a particular class of nerve patient. These low errors, and only these low errors, can be corrected unconsciously by the patient, and are only fully revealed when a cycloplegic is used in all under 45 (and in some cases 50) years of age. Homatropine generally suffices for the older patients, but atropine must be used for all up to the age of 25 or even 30. The masking of the defect enables the patient to have apparently normal vision, and he is totally unconscious of, and very often indignant at the mere suggestion of, defective vision. This unconscious correction of

small errors must always lead to waste of nerve energy, but in the robust it may never manifest itself, or the manifestation may be long delayed, but in those whose nervous organisation is of a more delicate character it very soon shows itself in some form of functional nerve disorder—insomnia, depression, suicide, drug taking, alcoholism, dyspepsia, &c.

Having found the defect—and in doing this the ophthalmometer is a priceless servant—the logical treatment is the prescription of the correction for constant use, and herein we perform a double good, for not only do we remove the symptoms, but also the cause, for in the younger patients the removal of the eyestrain tends to the disappearance of the error. I have heard it said that most of the cures are the result of “suggestion”; it is possible that an occasional case does occur of such a class, but suppose suggestion were the cure in all, is that an argument against the treatment? Is not our one and only aim to cure the patient? It should be remembered that the cases referred to above only occur very sparsely in hospital work, they must be looked for in the upper classes, especially in the professional classes. Some of the most typical cases I have seen have been members of our own profession. Women at the climacteric are especially prone to this form of eyestrain, the oncoming presbyopia added to the static error increasing the trouble or starting it. The opticians’ art has rendered a lasting benefit by inventing the invisible bifocal glass, wherein the upper portion corrects the static error and the lower portion the same, plus the presbyopia.

If the good that men do in this world is gauged by the benefits it confers on the race then the oculist who does his refraction work sensibly and carefully must have the consciousness of being a large benefactor.—I am, Sir, yours faithfully,

Chandos-street, W., Jan. 1st, 1915.

ERNEST CLARKE.

To the Editor of THE LANCET.

SIR,—If it be true, as suggested by Mr. C. Ernest Pronger in THE LANCET of Dec. 12th, 1914, that errors of refraction play a part in the production of habitual insomnia, it only affords another proof of the fact that this distressing condition is often dependent upon trifling disturbances of physiological equilibrium. Nothing, for instance, is more fatal to a good night’s rest than going to bed with a loaded rectum, especially in presence of a tendency to flatulence, because this tends to excite peristalsis and wakefulness. A glycerine suppository or injection under these conditions will exert distinctly hypnotic effects. An empty stomach is also adverse to sleep and should be combated by a biscuit or a cup of warm milk on retiring, these being far more efficacious than the customary alcoholic nightcap. Then, too, there is the question of having the head high or low, which is a matter of personal idiosyncrasy. A cold bedroom is more conducive to sleep than one artificially heated, and free ventilation, provided no cold air impinge directly on the exposed surfaces, is favourable to deep, refreshing sleep. The use of a feather bed or unduly thick, heavy bedclothes, by overheating the body, produces restlessness, and in elderly men is apt to cause bladder irritability, with consequent disturbance of rest. Another frequent cause of troubled nights is the practice of taking a heavy meal late in the day with too short an interval between the meal and the hour for retiring to rest.

In sleeplessness due to gastro-intestinal restlessness a few drops of peppermint or spirit of camphor or a wineglassful of orange-flower water will often exert a quasi-hypnotic effect.

Whatever the effect of errors of refraction it is certain that insomnia results from many other small causes.—I am, Sir, yours faithfully,

ALFRED S. GUBB, M.D.

No. 15 Auxiliary Hospital, Aix-les-Bains.

CIVIL MEDICAL PRACTICE AND THE WAR.

To the Editor of THE LANCET.

SIR,—The statistics in THE LANCET of Dec. 26th last, as given by the President of the General Medical Council, would have been still more interesting if they had shown the percentage of decrease in each class of medical students, and also if they had set out the actual numbers in ordinary times of the excess over those removed by death, &c., which, of course, is sure to be larger this year. As Sir Donald MacAlister says the whole question calls for consideration, I may be permitted as an old member of the General Medical Council to make a humble suggestion as to how the deficiency of doctors might for a time at least be met.

While I agreed at the time to the addition of a fifth year to the medical curriculum, I and others did so on the clear understanding that the additional year should be devoted *wholly* to clinical—i.e., practical—work. It is notorious that this has not been so. The fifth year as a rule has been appropriated by further study, and comparatively little has been left for taking charge of individual patients as house surgeon's or housephysician's clerk, or as *pupil* assistant. Wherever we turn the state of war has of necessity altered existing arrangements, and new ways of going to work have had to be considered. Not only many medical students but many medical men have gone "to the front." While it is true that in their absence their neighbours have generously looked after their patients, or locum-tenents have been found to take their place, I fear at great expense, yet both the patriotic practitioner and the public have suffered from this dearth of doctors. This being so, for the good of all, and I firmly believe without detriment in the interests of real medical education, a large proportion of fifth-year students (including during war hospital internes) might be allowed to act as unqualified assistants for the time being, and afterwards to go up for their final examination before being admitted to the Medical Register on producing a certificate that their time on probation had been conscientiously spent—in other words, that "their apprenticeship" had been profitably accomplished.

If the result of this temporary experiment were found to be satisfactory, then the same system might be continued after the war was over, and the coming scarcity of doctors would be met. It would be the means of adding, if not quite a fifth year by year, at least a tenth to the working army of the profession.

I am, Sir, yours faithfully,

Dingwall, Jan. 4th, 1915.

WILLIAM BRUCE, M.D.

PS.—Since the foregoing was written I have carefully perused both Sir Donald MacAlister's further letter and the able report of Dr. Norman Walker's speech at Glasgow. The thanks of the profession for the trouble taken by these gentlemen are most heartily due. As you say the new order of the War Office, for which we have to thank the

President and the Medical Council, will in many cases greatly relieve the situation for the time being, while the action of Dr. Walker and his committee is sure to bear good fruit. All the same, practically nothing is being done to meet the deficiency in numbers which Dr. Walker clearly shows must go on increasing. Whereas by shortening the term of academic residence a very considerable addition, as I have said, would be effected to the whole body of medical practitioners were it to include those fully licensed and those in process of being qualified for registration.

To the Editor of THE LANCET.

SIR,—The prospective diminution of our reserve supply of medical men will perhaps call attention to the question if we are making the best use of the abilities of the men we have already qualified. Apart from the Scottish-born student, who can if he thinks fit get his training at the expense of the Carnegie Trust, the cost of the curriculum to the English trained student may run to anything from £500 to £1000. After qualifying, if the student has a capital of £1000 to £1500 his course will be plain sailing. But what are the restrictions on others who have not this reserve? They are brought up against restrictions of a commercial kind, for the most part framed to protect the business or trading interests of the established practitioner. Hence the legal bond not to practise within ten miles of a place where a qualified practitioner may have been compelled from economic circumstances alone to accept a subsidiary position. If the qualified practitioner sets up in practice on his own, so to speak, he is again met with the restrictions of the insurance doctors, whose panel patients cannot change their attendant more than once a year, and then only by a very troublesome clerical procedure. So that unless the young qualified man can get together some £2500 and spend many years getting his capital back, he may very well think twice before taking up the occupation. There is more in the question surely than our academicians can alter or control.

I am, Sir, yours faithfully,

Burnley, Dec. 26th, 1914.

JAMES I. HALSTEAD.

MAGNESIUM SULPHATE IN TETANUS.

To the Editor of THE LANCET.

SIR,—In connexion with the great prevalence of tetanus among the wounded soldiers in France and the inefficiency of tetanus antitoxin except as a prophylactic, allow me to call the attention of your readers to the great service of magnesium sulphate administered by hypodermoclysis in from 1 to 2 per cent. solution, in quantities and at intervals depending upon the severity of symptoms—a pint to a quart even every three hours if necessary. I inclose for your perusal a copy of the notes of two cases I reported some years ago.¹

The effect of this salt in solution, administered intraspinally as an anticonvulsant, is generally well known; but that the same result may be obtained with much greater ease and safety by employing dilute solutions in large amounts hypodermatically is, I think, not recognised, and might, I am sure, at this juncture prove of great service. I venture to urge its trial extensively, especially where established measures have failed.

I am, Sir, yours faithfully,

Brooklyn, New York.

H. GREELEY, M.D.

¹ Journal of the American Medical Association, 1907, vol. xlix., pp. 940-1.

VACCINES AND THE GERMAN RAID: A USEFUL ANALOGY.

To the Editor of THE LANCET.

SIR,—Dr. F. C. Eve's letter in THE LANCET of Jan. 2nd shows in picturesque language the closeness of the analogy between the effect of a vaccine on the resisting power of a patient and the effect of a raid on the resisting power of this country. I suppose that all of us who have been busy inoculating soldiers and nurses against typhoid since the war began have been making daily use of this illustration. When the patient asks what is the vaccine expected to do, one can invite him to consider the effect of a German raid on our east coast in times of peace, drawing a picture of the bustle at the War Office, the activity of the local authorities, the movement of troops by road and rail, and above all the prompt enlistment of recruits. So far we are agreed that the illustration is a very useful one; it is when it is stretched to provide arguments against inoculating in a general infection that I think it ceases to fit the facts. In a systemic infection the body is not necessarily "swamped with toxins," but, at any rate in the commencement, is semi-poisoned with toxins or bacterial substances scattered throughout it. The parallel is the case of England permeated with spies and potential enemies, citizens of a foreign power. Dr. Eve assumes that in such a condition of systemic infection all the defences are thoroughly aroused. We know that this is not true in the case of England; I believe that it is not necessarily true in the case of the body. Both are lethargic; neither may have mobilised their full resources though the danger is urgent. The reason in both cases is, I think, that the danger though urgent is diffuse. Nowhere is it concentrated; nowhere is it sufficient to stimulate the locality into resistance. In such a case the east coast raid (or an inoculation) would provoke a powerful local stimulus, and this may break down the lethargy and help to stimulate defence against the hidden danger within. The more the country is permeated with enemies, or the more the body is permeated with bacterial substances, the greater is the difficulty or danger of stimulating a local production of protective powers; yet such protective powers must be produced or the body will die.

Of course, in the extreme case supposed by Dr. Eve, all the country being "swamped with toxin" (i.e., a million or more German soldiers being in full possession of the country), the human body, or the body politic, would be moribund, and any inoculation would be far too late. These analogies can only serve to illustrate one's point of view; they can never provide arguments for that point of view.

I am, Sir, yours faithfully,

Devonshire-place, W., Jan. 4th, 1915.

J. FREEMAN.

WHAT IS STRUMA?

To the Editor of THE LANCET.

SIR,—Virchow once described "struma" as an "abnormal vulnerability of the tissues," a definition, be it observed, which does not imply any connexion with tuberculosis. Accepting, then, for argument's sake this definition as correct, the logical inference is that strumous-looking persons are merely those whose tissues form an admirable cultivation medium for many pathogenic organisms, but most of all for the tubercle bacillus. The latter, being the most

ubiquitous, has possibly the best opportunity for infecting the favourable soil, and thus it may be that strumous-looking persons actually become the subjects of tuberculosis for the reason that their tissues happen to offer the least resistance to the cultivation attempts of this particular bacillus. Meanwhile, the strumous-looking person is one whose "abnormal vulnerability" depends upon hypothyroidism, the signs of which cease under thyroid treatment.

I am, Sir, yours faithfully,

Wimpole-street, W., Jan. 4th, 1914.

PERCY DUNN.

TWO UNLOOKED-FOR EFFECTS OF DRUG EXCRETION.

To the Editor of THE LANCET.

SIR,—The two following cases came to my notice while acting as medical officer of a submarine cable company. Before describing them I must say a word about the structure of a cable. In the middle is a core of copper wire surrounded by a layer of guttapercha insulation. This in turn is surrounded by a layer of brass tape spirally wound, and outside of this a layer of hemp and one of galvanised steel wires, the whole being surrounded by an outermost coat of guttapercha composition. Now in repairing a "fault" it is necessary to cut out the fault and joint a new piece in. The jointing is done by special men and is a business requiring considerable skill and practice. The most important parts of the job are the soldering of the copper core and the efficient application of the insulating guttapercha. The jointers put this on hot and a little at a time, forming layer upon layer; and as each layer is rubbed on they make use of their saliva to rub it smooth and to make it fix in with or adhere to the one before.

I can tell now of my two cases. One was a jointer who was under treatment for syphilis and was saturated with mercury, and the other was suffering from gonorrhœa and had treated himself lavishly with "santal-midi" capsules. In both cases the joints made by these men broke down—a somewhat serious matter when you come to consider the cost of submarine cable repairing. The reason I can only speculate on; doubtless some of your readers can explain it better than I can. My theory is this: that in the mercurial case there was sufficient mercury excreted in the saliva to make the insulation a partial conductor; in the other case, that the oil in the saliva kept the layers of gutta percha from binding together, for when the joints made by this man were reopened the insulation could be peeled off in thin flakes. Both cases are, I think, sufficiently interesting to merit a record.—I am, Sir, yours faithfully,

E. C. HARDWICKE, M.R.C.S. Eng.,

L.R.C.P. Lond.

Nov. 11th, 1914.

COLOUR SENSE IN RELATION TO NERVOUS STAMMER.

To the Editor of THE LANCET.

SIR,—During the past seven years 60,000 candidates for employment in the railway service of this State have been examined in this office, the examination in each case including a test for colour sense by Holmgren's wools and the Williams' lantern, and during the past five years by the modified Williams' lantern. Of these candidates 0.18 per cent. had a nervous stammer sufficiently

in evidence to impair their usefulness as railway servants and to reject them. I can recall no instance in which a man rejected for a nervous stammer was also found to be red-green blind. During the past three years I have carefully watched for such a combination. There is a complete record of all cases examined in this office. In one case only was a man rejected for defective colour sense who also had a nervous stammer. He was normal by Holmgren's wools, but he named pale green white in the lantern. Unfortunately at that time I had no knowledge of the value of either Stilling's or Nagel's test and therefore cannot state the real value of his colour defect. From this evidence it is at least probable that a nervous stammer is much rarer in colour-blind persons than in colour-normal persons.

I am, Sir, yours faithfully,

GEORGE HENRY TAYLOR,
Railway Medical Officer.

Medical Officer's Office, New South Wales Government
Railways and Tramways, Sydney, Nov. 11th, 1914.

THE ABUSE OF TEA.

To the Editor of THE LANCET.

SIR,—While conducting investigations into the dietary of the labouring classes I have been most forcibly impressed by the injurious effects of excessive tea-drinking amongst them. Tea is the invariable accompaniment of every meal, and as though this were not sufficient it is frequently drunk between meals. The effects of this over-indulgence, though noticeable on all sides, are particularly pronounced in the case of nursing and expectant mothers, the general disturbance of nutrition, in addition to local digestive troubles, being accentuated in them. I feel sure that the abuse of tea is one of the most potent causes of the inability of the women to suckle their babies, and is thus an indirect cause of a high infantile mortality. In Birmingham during the hot weather 30 times more bottle-fed babies die than those breast-fed, and among the survivors the bottle-fed are at a great disadvantage as compared with the naturally fed babies. In my work at Birmingham I have therefore sought to find a substitute for tea. It is of no use to counsel moderation and advance the virtue of plain water; the poor refuse to consider such a change. Cocoa, however, has proved in practice an acceptable alternative to them, and I am satisfied as to the good results which accrue to the mother and the children when cocoa is substituted for tea as the family beverage. It seems to me that the present is a favourable time for urging a general reform in this direction—first, because the price of tea has increased beyond that of cocoa; and secondly, because the people are now more open to receive and follow advice with regard to their food. I should be much obliged if you could give publicity to this matter, which, though it may appear trivial, is, I am convinced, of national importance. I am, Sir, yours faithfully,

Birmingham, Dec. 29th, 1914.

A. E. CARVER, M.D.

TENDIMUS HUC OMNES.

To the Editor of THE LANCET.

SIR,—We are all aware that "to every man upon this earth death cometh soon or late," but the usual impression is that the man whose profession is fighting runs a greater risk than the civilian, and when he enters on a campaign, that his chances of escaping from "this muddy vesture of decay" are appreciably increased. An American

statistician has, however, stated that "ominous as are the soldier's dangers in war, they are really but little greater than are the civilian's dangers of dying before he has time to set aside the necessary nest egg for his dependents." By comparing the statistics of the four considerable wars of the last 50 years—namely, the American Civil War, the Franco-German War, the South African War, and the Russo-Japanese War of 1904-05—he finds that the average mortality from all causes, including the killed in battle and the deaths from wounds and disease, amounted to 90.1 per 1000 per annum; in the Civil War it was yet higher; in the South African War it was only 40.2. The deaths from disease were practically double those from wounds in the Civil War (66 compared with 32.5) and in the South African War (26 compared with 14.3); the proportions were reversed in the Franco-German War (28.8 and 67.7) and in the Japanese War (25.1 and 54.2). Mr. E. B. Phelps, editor of the *American Underwriter*, of New York, whose figures I am quoting, calculates that if the present war continues for a full year, the number of men engaged amounting to five, or possibly six, millions, it will cost more lives than all causes will demand among the entire adult male population of the United States. But he then says that, as a matter of experience, the chances of even the youngest man of marriageable age living long enough to set aside the most modest competence for his family when he is gone are not much better than are the soldier's chances in time of war; instancing, as an example, that whereas out of 92,637 young men, aged 20, engaged in war 84,290 might be expected to be alive at the end of a year's fighting; out of the same number of men of that age engaged in ordinary occupations not more than 84,000 would survive to 32 years of age. By a similar comparison he finds that the fighting soldier's chance is better than that of a civilian of 30 surviving to 41, of 40 surviving to 49, or of 50 to 56. These figures are rather startling, and would indicate that the soldier's dangers in war are really but little greater (and, in some cases actually less) than are the civilian's chances of dying before he has time to set aside the necessary provision for those dependent on him. The bearing of this observation lies in the application of it, which is, of course, that everyone should insure his life, and that the earlier he begins the better bargain he will make.

I am, Sir, yours faithfully,

A. M. D.

Jan. 4th, 1915.

Medical News.

UNIVERSITY OF LONDON.—At the First Examination for Medical Degrees held recently the following candidates were successful:—

Gerald Victor Wright Anderson, University of Bristol and University College (distinction in physics); Maurice Aronson, London Hospital; Terence John Doyle Atteridge, St. Bartholomew's Hospital; Julia Bell, London (Royal Free Hospital) School of Medicine for Women; Thomas George Doughty Bonar, Hymers College, Hull; Jean Auguste André Bouic, Guy's Hospital; Sarah Aileen Florence Boyd-Mackay, London (Royal Free Hospital) School of Medicine for Women; Norman Carwardine Cooper, University of Bristol; Ursula Beatrice Cox, London (Royal Free Hospital) School of Medicine for Women; Carl Knight Cullen, London Hospital; José Joaquim da Gama Machado, St. Bartholomew's Hospital; Edith Margery Pearce Davies, London (Royal Free Hospital) School of Medicine for Women; Thomas Davies, B.Sc., University College, Aberystwyth, and private study; John Joseph Philip de Chaumont, King's College; Jacob Franks, London Hospital; Dorothy Margaret Greig, The Grove School, Highgate, and Northern Polytechnic Institute; Magdalena Augusta Hilda Hamel, London (Royal Free Hospital) School of Medicine for Women; Christopher Langton Hewer, University College School and St. Bartholomew's Hospital; Arthur

St. Geo. Joseph M. Huggett, S.W. Polytechnic Institute and St. Thomas's Hospital; Herbert Vivian Jackson, University of Bristol; Jerusha Jacob Jhirad, Grant Medical College, Bombay, and private study; David Lavington Glyde Joseph, Charterhouse and Guy's Hospital; John Wilfred Joule, St. Paul's School; Ernest Francis Kerby, Guy's Hospital; Maurice Edmund King, University College; Maurice Laurent, University Tutorial College (distinction in inorganic chemistry); Teresa Jadwiga Lesser, London (Royal Free Hospital) School of Medicine for Women; Glyndwr Morison Lewis, University College; Douglas McClean, Berkhamsted School and St. Thomas's Hospital; Murdo Mackenzie, Guy's Hospital; Arthur George Abraham Miller, B.Sc., Middlesex Hospital; John Clifford Rowland Morgan, University College, Cardiff, and private study; Robert Gordon Morrison, Epsom College and St. Thomas's Hospital; William Drew Nicol, St. Bartholomew's Hospital; Robert Hughes Parry, Middlesex Hospital; Percival George Quinton, University College; Arthur Hywel Richards, Epsom College; Esther Rickards, Birkbeck College; Jessie Craig Ritchie, London (Royal Free Hospital) School of Medicine for Women; Frank Paul Schofield, St. Bartholomew's Hospital and private study (distinction in physics); Marguerite Garnett Sheldon, University of Liverpool and private tuition; Satyavan Singh, University College; Victor Alexander Trevor Spong, Dulwich College and St. Bartholomew's Hospital; Horace Rees John Thomas and John Phillip Traylen, London Hospital; and Reginald Frank White, University of Bristol.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 29 cases were considered and grants amounting to £237 were voted to 25 of the applicants. The following is a summary of the cases relieved:—

Widow, aged 74, of M.R.C.S. Eng. who practised at Braintree. Husband died 23 years ago and left her without means. She has managed to support herself, but unable to save, until incapacitated by old age. Lives with married son, who has three children and only a small salary. Voted £2 and referred to the Guild.—M.R.C.S. Eng. and L.R.C.P. Lond., aged 48, who practised in Lancashire. Has become blind. Married; two children. Wife and children live with relatives. Wants a little help to obtain some training in massage. Voted £10 and referred to the Guild.—Widow, aged 56, of L.S.A. Lond., who practised at Bournemouth. At her husband's death in 1913 was left without any income and unable to obtain suitable employment. Only income 10s. per week from the Society of Apothecaries. Voted £12 in six instalments and referred to the Guild.—Daughter, aged 45, of M.D. Edin. who practised at Southampton. Trained as a midwife, but recently had to undergo a serious operation and has been ten weeks in bed. Voted £10 in two instalments and referred to the Guild.—Daughter, aged 40, of M.D. St. And. who practised at Swinton, Lancs. Was a teacher, but underwent a severe operation in September, 1913, and has not been able to work since. Mother has only a small annuity and has to keep an invalid son. Voted £18 in 12 instalments.—Daughter, aged 68, of M.R.C.S. Eng. who practised in London. Has been a teacher for 40 years in England, Russia, and Germany. On account of the war had to return from Moscow four months ago, where she had been in one post for seven years. All her savings were in the Deutsche Bank, Berlin, and could not obtain any. Voted £12 in 12 instalments and referred to Guild.—Widow, aged 66, of M.R.C.S. Eng. who practised at Heywood, Lancs. Has endeavoured to earn a living by acting as housekeeper and cook, but owing to age and the war finds it impossible at present to obtain a suitable post. Voted £2 and referred to the Guild.—Daughter, aged 74, of M.R.C.S. Eng. who practised in London. Up to quite recently has acted as a church visitor at £35 per annum, but owing to age has had to give it up. Has a small pension from the Mercers' Company. Voted £12 in 12 instalments.—Daughter, aged 47, of M.D. St. And. who is too old to practise and too poor to help. Earned her living as a teacher until three months ago, when owing to internal trouble had to enter a nursing home, and now all her savings are gone. Voted £5 and arrangements to be made to have the applicant operated upon.—Widow, aged 40, of M.R.C.S. Eng. and L.R.C.P. Lond. who practised at Norwood. Husband died quite suddenly from typhoid, leaving the applicant and three young children in straitened circumstances. Voted £5.—Daughter, aged 50, of M.R.C.S. Eng. who practised at St. Clears. Has double curvature of the spine. Lives with mother, who is a pensioner of the Fund, and two delicate brothers who cannot afford to keep her. Relieved once £5. Voted £6 in 12 instalments.—Widow, aged 41, of M.R.C.S. Eng. who practised in N. Wales. Has two young children. Endeavours to earn a living by selling clothes on commission, but owing to the war the sales have greatly diminished. Relieved three times, £30. Voted £10 in two instalments.—Widow, aged 60, of L.R.C.P. & S. Edin. who practised in London. Present distress caused by death of only son who supported her. Earns a little by needlework. One daughter allows her 5s. per week, otherwise no other support. Relieved twice, £20. Voted £10 in two instalments.—Daughter, aged 56, of L.R.C.P. Lond. who practised at Hammersmith. Unable to work through ill-health. Only income a little from the Guild and occasional gifts of food and clothing. Relieved seven times, £26. Voted £18 in 12 instalments.—Widow, aged 69, of M.R.C.S. Eng. who practised in Ireland and America. Suffers from muscular rheumatism. One son who has not been heard of for a long time. No income and unable to work. Relieved five times, £60. Voted £12 in 12 instalments.—Daughter, aged 68, of M.D. Edin. who practised at Cheltenham. Eyesight very bad, and ill-health prevents her doing any work. Only income £13 10s. per annum, and a little from friends. Relieved once, £12. Voted £12 in 12 instalments.—Widow, aged 68, of M.R.C.S. Eng. who practised at Yelverton. Takes paying guests, but owing to the bad season is in difficulties. Relieved five times, £52. Voted £12 in 12 instalments.—Daughter, aged 58, of L.R.C.P. Lond. and L.S.A. Lond. who practised at Brierley Hill. Health very bad and unable to do any permanent work. Income a R.U.K.B. Assoc. pension of £21 per annum and from friends 10s. per month. Relieved seven times, £41. Voted £12 in 12 instalments.—Daughter, aged 52, of M.R.C.S. Eng. who practised in London. Has had several internal operations and obliged to mortgage her small capital to pay for same. Lives with married sister, who gives her a

home but unable to keep her. Relieved five times, £54. Voted £10 in two instalments.—Daughter, aged 63 years, of M.R.C.S. Eng. who practised at Northampton. Health very indifferent. Has a small annuity, but not sufficient to live on. Relieved once, £5. Voted £5.—Daughter, aged 47, of M.R.C.S. Eng. who practised in India. Is bedridden and quite helpless. Only income an annuity from the British Home for Incurables. Relieved three times, £36. Voted £12 in 12 instalments.—Widow, aged 43, of M.D. Irel. who practised at Newcastle-on-Tyne. Health indifferent, but endeavours to make a little by taking lodgers. Allowed £25 per annum for education of only child. Relieved four times, £30. Voted £5.—Daughter, aged 48, of M.R.C.S. Eng. who practised at Gillingham. Has very indifferent health and unable to find suitable employment. Recently has been selling papers in the streets at a remuneration only sufficient to pay the rent of a room. Relieved once, £5. Voted £12 in 12 instalments and referred to the Guild.—Widow, aged 56, of L.S.A. Lond. who practised at Limehouse. Endeavours to make a living by letting rooms, but not very successfully. Two daughters, who are in service, can only allow her 5s. per month. Health bad. Relieved nine times, £46. Voted £12 in 12 instalments.—Daughter, aged 66, of M.R.C.S. Eng. who practised at Great Torrington. Has acted as housekeeper and general help, but at present out of employment, as her age is against her. Relieved once, £12. Voted £1 and referred to the Guild for report.

In addition to the above the committee appointed from the grantees six annuitants at £20 each. This brings the total of annuitants up to 142. Contributions may be sent to the honorary treasurer, Dr. S. West, 11, Chandos-street, Cavendish-square, London, W.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At a meeting of the College held last week Professor Edward H. Taylor was unanimously elected to the place on the council vacant by the death of Mr. F. T. P. Newell.

ANTHRAX AND ITS NOTIFICATION.—An adjourned inquiry was concluded on Jan. 4th by Dr. F. J. Waldo, at the Southwark coroner's court, into the death of a butcher's manager named Tarrant, aged 46, who died in Guy's Hospital from anthrax. It was stated that Tarrant's employer purchased his meat from a firm whose head slaughterman died from anthrax at Croydon, and about the same time the deceased complained of a pustule on his neck which was diagnosed as anthrax. A clerk of the same wholesale firm and a son of Tarrant's employer, were also suffering from the same disease, but were recovering, and another man had since contracted the disease and a horse had died from it. Dr. T. M. Legge, H.M. Inspector of Factories and Workshops, in the course of his evidence, stated that anthrax was a notifiable disease when occurring in a factory, but a butcher's premises were not technically a factory. He had never heard of anthrax being communicated by frozen rabbits. The coroner read a letter from the High Commissioner for New Zealand informing him that there had not been a case of anthrax in that country for years, and that frozen rabbits had never been known to carry the infection. Dr. Legge further stated that in some districts registrars of deaths reported deaths from anthrax to the chief factory inspector, which was very useful, and in his opinion the disease should be compulsorily notifiable to coroners in fatal cases. Evidence on behalf of the wholesale firm showed that great care was taken in the purchase of cattle, and that since the present cases their premises had been thoroughly disinfected. Dr. R. V. Clarke, medical officer of health of Croydon, said that every possible assistance had been given him by this firm, who had supplied a complete list of all animals they had dealt with and their sources. He agreed that it would be very useful if all deaths from anthrax were reported to the coroner. He had never seen anthrax in frozen meat. The city coroner, in the course of his summing-up, said that he had always advocated the addition of anthrax to the list of infectious diseases compulsorily notifiable to the medical officer of health. The Guy's Hospital authorities always notified fatal cases of anthrax to him. It seemed strange that whereas all cases of anthrax in the human subject were not compulsorily notifiable, all cases in the lower animals were compulsorily notifiable under the stringent regulations of the Contagious Diseases (Animals) Act. The jury returned a verdict of "Death from anthrax," but added that there was not sufficient evidence to show how it was contracted, the verdict amounting thus to one of "Death from misadventure." In a rider they suggested that all doctors attending such cases should be compelled to notify to the medical officer of health, and that all deaths should be compulsorily reported to the coroner. This recommendation will be forwarded by the coroner to the Local Government Board and other authorities.

Obituary.

THOMAS BRYANT, F.R.C.S. ENG., HON. M.CH.
R.U.I., HON. M.D. DUB., HON. F.R.C.S. IREL.,
CONSULTING SURGEON TO GUY'S HOSPITAL; LATE SURGEON IN
ORDINARY TO THE KING.

THE death of Mr. Thomas Bryant, which took place on Dec. 30th at his residence, 21, FitzGeorge-avenue, Kensington, deprives the profession of a prominent figure in Victorian surgery.

Thomas Bryant, who was the eldest son of the

late Mr. Thomas Egerton Bryant, M.R.C.S., an intimate friend of Sir Astley Cooper, was born in Kennington on May 26th, 1828, and had therefore reached the age of 86 at the time of his death. He received his education at King's College School, and in 1846 entered Guy's Hospital as a student, remaining connected with it for the whole of his professional life and being one of its consulting surgeons at the time of his death. He qualified as M.R.C.S. in 1849. He took the Fellowship of the Royal College of Surgeons by examination on May 12th, 1853, with Mr. Richard Barwell, and was therefore one of the two oldest surviving Fellows of the College. In 1857 Thomas Bryant was appointed

assistant surgeon to Guy's Hospital and in 1859 lecturer on operative surgery. On the full staff of the hospital at that time were Gull, Hilton, and Cock, while Wilks was the junior assistant physician, corresponding to Bryant on the surgical side. He became full surgeon in 1871 and lecturer on surgery in 1875. He relinquished these posts in 1888 and became consulting surgeon, continuing, however, to give lectures on clinical surgery for a while. During his active connexion with Guy's Hospital he was simultaneously carrying

on a very large private practice as an operating and consulting surgeon—indeed, during what may be called the immediate pre-Listerian period he was one of the leading surgeons in the metropolis, and fully deserved the position.

Mr. Bryant's connexion with the Royal College of Surgeons of England was an exceedingly long one. He became a member of the Council in 1880, at the same time as Lister, whom he just beat in the voting. While on the Council he filled with efficiency every available appointment. He was a member of the Court of Examiners from 1882 to 1892, as well as a representative of that

court on the Board of Examiners in Dental Surgery in 1887. In 1888 he was Hunterian professor of surgery and in 1889 Bradshaw lecturer of the College. In 1890 he was elected President, and in 1891 he became the representative of the College on the General Medical Council. In 1893 he was Hunterian orator. He was President of the College for three years, but in this position made no particular mark, for his business aptitude was not great. His handsome presence, urbanity, and real kindness of heart were his chief assets in public life. Bryant was for many years—namely, from 1891 to 1904—the representative of the Royal College of Surgeons of England on the General Medical Council, and for part of this time he acted as



Thomas Bryant.

honorary treasurer. He was a pleasant colleague on the Council, and had a very high standard of professional ethics, but he was treasurer at a difficult period in the finances of the Council, and his designs for meeting the position did not escape criticism. He also occupied the presidential chair of various professional societies, the Medical Society of London in 1872, the Hunterian Society in 1873, the Clinical Society in 1885, and the Royal Medical and Chirurgical Society in 1898-99.

In 1872 he published the first edition of his "Practice of Surgery," which reached a fourth edition in 1884. The book attracted immediate attention from its original features. The illustrations were for the most part original, instead of the old stock illustrations which had for years been reproduced *ad nauseam*; secondly, Bryant introduced the principle of colouring arteries and veins respectively red and blue; and thirdly, he quoted his references to previous authors in place of paraphrasing them with or even without acknowledgment, as was then too commonly the practice. The book was at once recognised as essentially the fruit of experience by a well-practised surgeon, but it was not written upon any plan which enabled it to be kept in the front by new editions as a standard work. It dated from the pre-Listerian era, was an admirable manual, and sold largely, but could not be modernised as surgery progressed. He also published works on "Diseases of the Breast" (1887) on the "Surgical Diseases of Children" (1893), and on "Villous Growths and Common Diseases of the Rectum" (1899), and was a frequent contributor to THE LANCET.

Among the honours that fell to him, he was Sergeant Surgeon to the late Queen Victoria and Surgeon in Ordinary to King Edward VII. Academically he was honoured in 1887 by the Royal University in Ireland with its honorary M.Ch. degree, and in 1892 the University of Dublin gave him its honorary M.D., while the Royal College of Surgeons in Ireland conferred on him its honorary Fellowship.

At the time of his death Mr. Bryant had for some years retired from practice, and it is an open secret that his connexion with certain disastrous financial undertakings left him in very modest circumstances.

Mr. C. H. Golding-Bird writes:—"With the death of Thomas Bryant, a representative surgeon and teacher of his day, a link between past and present surgical practice and a man of noble presence has passed away. It was in the late 'sixties' that I first knew him, when he was assistant surgeon to Guy's Hospital, and to his careful, thorough, and lucid teaching many, like myself, owe the foundation of their surgical knowledge. His out-patient day was always crowded, and that not only by students but often by practitioners, whilst his firm yet kindly manner and his sympathetic treatment of the poor attracted the patients themselves, and his name was a household word amongst the dwellers in South London. Always optimistic, contact with him helped the young student along the difficult paths of surgical practice, and even where his hopeful prognostications were seen not to be fulfilled his pupils seemed instinctively to feel that it was no fault of his; for if it—whatever it was—had been possible to any, Bryant was the man to have done it; if he failed, no one else could have achieved it. He was the man to trust. Method, precision, and clear expression in teaching were the keynotes of his success; he would come, always very punctually, to the hospital armed with several note-books, and almost every patient was therein entered, with the diagnosis and remarks on the case; and it was from these books he largely drew the statistics for which he had a great liking, but on which I certainly cannot but think an exaggerated value was often placed and from which deductions not always safe were drawn.

The year after his appointment as full surgeon to the hospital his text-book of surgery appeared and was at once welcomed as the best and most up-to-date work for the student. Written rather from the author's clinical experience than from reference to that of others, the book possessed an individuality of its own, and inspired a confidence in what it taught.

A general hospital surgeon in the full sense of the word, Bryant had little sympathy with specialists and specialisms; but in his palmy days research had not differentiated the various departments of surgery as it has done in later years. He, however, was considered by some as a specialist in at least two subjects—viz., the surgery of the breast and the abdomen, particularly in colotomy and ovariectomy. In breast surgery he had been preceded by John Birkett, whose practice, which I knew well, undoubtedly influenced his successor, and though both surgeons only operated in the limited way of their period, the immediate results obtained by Bryant were clinically very remarkable. Strict cleanliness, though only that of soap and water and clean towels, together with rapidity in operating and the important recognition of the harm resulting from the retention of blood and serum in the wound, were his main elements of success. His dressing of a breast case, after the suturing of the wound, consisted in the application for some minutes of firm pressure to express all fluid, and then of a towel, folded as it came from the laundry, over each flap—with generally Friar's balsam on the wound itself—followed by very firm bandaging to prevent the possibility of any re-accumulation of blood. I can vouch for it that Bryant had rarely any complication follow which was directly due to the operation or to the immediate after-treatment, and primary union was not infrequently secured. With the same methods the same success followed his amputations of the breast—a common enough operation at that time. Bryant was most anxious to avoid the use of buried ligatures, which for some time consisted only of silk dipped in boiling wax and carbolic acid, so when torsion was found feasible he became its pioneer at his hospital; and the forceps for the purpose used for many years, and which preceded Spencer Wells' forceps, were, I believe, of his own pattern—at any rate, they always bore his name. He was keen to try anything new, and before either adopting it or abandoning it gave it an exhaustive—and to his dressers instructive—trial. Hence, amongst other reasons, the great demand for a dressership in his wards. Bryant was a bold though careful and neat operator. He used his knife without hesitancy, and anything but a clean cut was abhorrent to him. The medical operations, if I may so style them, were few in his day; but he never hesitated to act at the request of his medical colleagues, even if there were no precedent for it, if he honestly thought there was a reasonable chance of success; and he has told me that he was the first to explore a 'perityphlitic' swelling and found the 'date-stone,' though he never suspected, as no one then did, any connexion with the appendix. As a colotomist he had a wide reputation; and I know, since I often assisted him in private, that many cases from abroad sought his aid. A summons once took him to Constantinople to one of these cases, an occurrence of which he was justly proud. These were, of course, the days of the lumbar operation, when if the peritoneum were by chance injured a fatal peritonitis was

practically certain to ensue; yet he never shirked responsibility, though I know with what extreme anxiety he always approached these cases and how keenly he felt failure when it occurred.

Bryant's position in regard to Listerism was peculiar; he never could bring himself to adopt it, and he was one of the two leading surgeons who spoke for the 'opposition' at the conclave held—early, I think, in the 'seventies'—at St. Thomas's Hospital to consider the merits of this method as then evolved. He spoke against it in an unqualified manner; but to this, I think, he was prompted by the success undoubtedly enjoyed by the general methods of cleanliness that he had so long practised and to which he thought little could be added by way of improvement. And at that time it must be remembered that carbolic acid was rather a two-edged tool to play with, for it was far from pure, causing intense irritation, not only to the operator, but to the patient, and that to a degree unsuspected by those who now have only to deal with the absolutely pure chemical. He necessarily also never made use of the 'spray,' though he could not in the nature of things withhold from being gradually influenced by what was developing around him, so the various antiseptic Listerian dressings were by degrees adopted, at least in his hospital practice. Having never adopted the antiseptic methods in their entirety, his immediate results were presently not so favourable as those of his colleagues, such as Howse or Davies-Colley, who were antiseptic to their finger ends. Later on he almost entirely dropped carbolic acid, employing peroxide of hydrogen and iodine water (i.e., water with a little tinct. iodi added) both in his operations and for the cleansing of foul cavities. This is the more interesting to note now, since these two drugs have sprung into notoriety; but my own experience of them in Bryant's practice, which I not only witnessed but which at times I was asked to take charge of, failed to inspire me with confidence in their efficacy, whatever value an immediate compress of tinct. iodi on a recent wound may have, for in this way I never knew him to employ the drug.

As an ovariologist, too, Bryant had a great reputation, and he undoubtedly scored many a success in his earlier operations by a scrupulous attention to general details and to cleanliness, as well as to his habit of refraining from all meddlesome handling of organs. His success here was markedly increased when he began to employ the extra-abdominal method of treating the pedicle by clamping—a practice that, I believe, he was the first to employ in Guy's Hospital, and which was followed for many years. There can be no doubt that his scope of work was largely limited in his later years by his never having fully adopted antiseptic methods—for aseptic methods do not apply to his time—and from conversations I have had with him I am convinced he was far too conscientious a man to undertake some of the more modern operations, from a feeling that he was handicapped by not being able to give his patient the full benefit of recent scientific knowledge. If Bryant prided himself more on one thing than another it was in being a conservative surgeon; and he constantly instilled into his pupils the doctrine that it was wrong, if not immoral, to remove an atom more of the human body than the actual disease warranted. Doubtless this, broadly speaking, was a good principle to inculcate, but carried too far, as it sometimes was, especially in amputations, it led in his practice to

some awkward and inconvenient results. His teaching, however, in regard to the relationship between surgeon and patient had always an undercurrent of high ideal and straightforwardness. Bryant always thought more of his patient than of himself, and I never knew him to be influenced by the desire to improve his statistics—much as he liked these figures—to the extent of either unnecessarily operating or in any way adding to his patient's risk or discomfort.

A handsome man, of commanding presence, with a personality that impressed itself on others, genial, kindly, and always ready to lend an ear to any that sought his advice, Bryant was the friend of all who knew him, whether student, colleague, or patient. The student felt that in him he had a friend to whom he could go for advice at all times, and never fail to get his sympathy and help. To his dressers' mistakes he was lenient, and whilst he never overlooked anything nor hesitated to correct, he at the same time explained and instructed so as to avoid a repetition of a similar mischance. As a colleague he was valued by all, and though "once upon a time" there arose a serious difference between himself and a colleague that even threatened the peace of the hospital, he met his quondam friend in the open court of the operating theatre at the instance of their other colleagues, and both men publicly shook hands and thus closed the incident for ever. Beyond this nothing ever happened to disturb the harmony with which Bryant performed his public duties at Guy's Hospital; and those who knew him personally will always cherish the memory of him as of a true friend, a courteous gentleman, and if not exactly a pioneer, at any rate a splendid example of the British surgeon.

Dr. Frederick Taylor writes:—"It would be presumptuous in me to say much about Mr. Bryant's special qualifications as a surgeon, but I may be allowed to give my impressions of him as a teacher in the school of Guy's Hospital and as a colleague on the medical staff. In the middle 'sixties' the surgical teachers most followed by the students at Guy's Hospital were among the surgeons Mr. John Hilton, and among the assistant surgeons Mr. Thomas Bryant. Mr. Bryant was then approaching 40 years of age, was tall, upright, handsome, with an easy confident carriage, a cheerful look, and a clear pleasant voice—altogether a very taking personality, with every appearance of knowing exactly what he was about, and without anything that could be fairly regarded as undue self-satisfaction. He attracted the student by his friendly manner of dealing with his dressers and clerks, and I may also say with his hospital patients. Happily these surface-markings, so to say, were not belied by anything that he gave us as a surgeon and teacher of surgery. In the latter capacity he was highly successful. Whether in the out-patient room, at the bedside, or in the lecture theatre he always had a large class, and with his clear, incisive speech and the clever arrangement of his facts and arguments he kept the attention of his audience to the last moment of the allotted time. At the bedside and in the out-patient room he interested himself in the progress of every student, even the most junior, and developed to the full the excellent system of teaching by question and answer.

As a surgeon he was keen and courageous to a degree. He was one of the early successful operators for ovariectomy, and he had the courage to remove

the spleen in two cases, but only two, of splenic leukaemia at a time when leukaemia was rarely recognised until the spleen had become enormous, and when the supreme difficulty of checking hæmorrhage in a highly leukæmic patient had not been fully recognised. The substitution of torsion for ligature of arteries was another innovation about that time, which he adopted with great ardour and employed successfully. I believe that in his later years he was regarded as being somewhat behindhand in the matter of antiseptic and aseptic surgery; but it could not have been from any disagreement with the principle of such treatment, for I well remember that he tried, enthusiastically and hopefully, Lister's treatment in its first phase—namely, the thorough dressing of wounds with carbolic oil.

Mr. Bryant was a good colleague. He took his fair share of the administrative work of the school and hospital, was punctual and exact in his attendance, and always courteous, considerate, and helpful in committee or council. He wrote attractive and valuable articles in the *Guy's Hospital Reports*, and frequently contributed cases from his wards to the 'Mirror' of THE LANCET. I will leave to others to appraise the merits of his book on the 'Practice of Surgery,' about which he took an immense amount of trouble and which at its first appearance was unique amongst British works in the profuseness of its illustrations, and had a pronounced success."

Sir Dyce Duckworth writes:—"I was brought into close relation with Mr. Bryant for some years on the General Medical Council, and I have none but kindly remembrances of him. He took his duties seriously, and was always a pleasant colleague who laboured diligently in the Council, and in his study, at its committee work. We represented our respective Royal Colleges and the English Conjoint Examining Board. I did not always see eye to eye with him on some matters in the Council when it became necessary to withstand opposition, but such little differences never ruffled his kindly nature or cooled our friendship for a moment. I can bear no worthy testimony as to his surgical skill and teaching, but I always regarded these as expressive of the recognised soundness of the Guy's school of surgery of his day. He was tenacious of all that he felt sure of, and his convictions were certainly founded on a large practical experience. I am sure that he was esteemed by his colleagues, his pupils, and his patients as a tender-hearted and sympathetic man, and one cannot doubt that his record as a surgeon will surely add to the reputation of his school.—*Exstinctus amabitur idem.*"

A CENTENARIAN.—The death is announced at Newry of Miss Ellen Byrne, who is said to have been the oldest woman in Ireland, having reached the reputed age of 115 years.

BRISTOL INFECTIOUS HOSPITAL.—At the last meeting of the Bristol city council it was decided to increase the isolation hospital accommodation by extensions at the Nover's Hill Hospital. The scheme is estimated to cost about £7700, and will provide for 24 additional beds and increased accommodation for the staff.

DONATIONS AND BEQUESTS.—The late Mr. J. H. Burley, of Leamington, has bequeathed £5000 to the Leicester Infirmary for a "Burley Ward" or for beds to be called "Burley Beds," and £2000 each to the Leicester Institution for the Blind, the Children's Hospital, Leicester, the Home for Incurables, Leamington, and the Cancer Hospital, Fulham.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week terminating on Tuesday, Jan. 5th, the subscriptions announced below have come in, and the correspondence which has been received by the secretaries shows that interest in the movement is spreading. The objects of the Fund, which aims at alleviating the misfortunes of Belgian doctors and pharmacists, both those remaining in Belgium and those who are refugees with us, have been seen to concern closely the two professions in this country, and the response to appeals for the Fund has been considerable. A number of representative men have joined the General Committee.

An appeal is now being distributed by the Executive Committee of the Fund, which it is hoped will be followed by more general support.

The subscriptions which have been received up to Tuesday evening last by the honorary treasurer, Dr. Des Vœux, in addition to £2505 previously announced, and not including the subscriptions received in Dublin, are as follows:—

	£ s. d.		£ s. d.
Dr. E. Kaye-Smith ...	3 3 0	Consett Division, B.M.A. (per Dr. J. Charles, Hon. Sec.)—	
Dr. C. P. Handson ...	1 1 0	Dr. Thos. Grainger...	3 3 0
Dr. E. J. Wood ...	1 1 0	Dr. William Bratten	1 1 0
"The Barrhead Medical Men" (per Dr. R. Corbett) ...	5 0 0	Dr. A. D. M. Macintyre ...	1 1 0
Dr. May Thorne ...	2 2 0	Dr. J. Murray ...	1 1 0
Surgeon H. W. Scott, R.N. ...	2 2 0	Dr. W. C. Fraser ...	1 1 0
Dr. R. O. Moon ...	5 5 0	Dr. W. M. Morison ...	1 1 0
Dr. Pelham C. Maitland	1 0 0	Dr. Alex. Cook ...	1 1 0
Dr. Dora E. L. Bunting	1 0 0	Dr. R. E. Ingram-Johnson ...	1 1 0
Dr. Guy B. Courtney ...	1 1 0	Dr. E. G. D. Benson	1 1 0
Dr. H. Cooper Pattin ...	1 1 0	Dr. D. A. Dewar ...	1 1 0
Mr. Kenneth Scott ...	2 2 0	Dr. J. Charles ...	1 1 0
Dr. E. T. Larkham ...	1 1 0	Dr. H. Finzel ...	1 1 0
Dr. Bruce C. Kelly ...	2 0 0	Dr. Reginald A. Yeld ...	0 10 0
Messrs. H. Mitchell and Son ...	0 10 6	Dr. Semples ...	1 1 0
Dr. James Green ...	2 2 0	Dr. Reginald A. Yeld ...	0 10 0
Mr. George Waugh ...	5 5 0	Canterbury and Faversham Division, B.M.A. (second donation) (per Dr. Neil Robson, Hon. Sec.)—	
Dr. R. Wilde ...	0 10 0	Dr. John Greasley...	1 1 0
Surg-General O'Dwyer, A.M.S. ...	1 1 0	Dr. S. R. Alexander ...	1 1 0
Dr. T. A. Chapman ...	2 2 0	Dr. W. M. Scott ...	1 1 0
Mr. W. H. Vickery ...	1 1 0	Dr. F. W. Penfold...	1 1 0
Dr. Rossiter ...	1 1 0	Dr. John Watson ...	1 1 0
Mr. Frederic Durham ...	2 2 0	Dr. A. E. Barclay ...	10 10 0
Dr. South ...	1 1 0	Shropshire and Mid-Wales Branch, B.M.A., second donation (per Dr. A. G. Mackenzie, Hon. Sec.)—	
Mr. Charles Spurrell ...	2 2 0	Dr. H. G. P. Le Fanu	1 1 0
Dr. D. H. Forty ...	1 1 0	Dr. J. H. Clark ...	1 1 0
Dr. H. P. Fairlie ...	5 0 0	Dr. E. A. Elkington	1 1 0
Dr. Douglas D. Malpas...	2 2 0	Mr. Prosper H. Marsden	1 1
Dr. H. L. Ormerod ...	3 3 0	Messrs. T. and H. Smith, Limited ...	25 0 0
Dr. Eliza L. Walker		Employees of Messrs. Reynolds and Branson, Limited (per H. S. Sykes, Esq.) ...	5 5 0
Dunbar ...	2 2 0	Lieutenant-Colonel Walsh, I.M.S. (by sale of gold medal) ...	10 10 0
Dr. T. H. Hammond			
Williams ...	2 2 0		
Midland Railway Surgeons' Association (per Mr. F. W. J. Coaker, Hon. Treas.) ...	3 3 0		
Dr. F. St. John Bullen...	5 5 0		
Mr. J. P. Ellerington ("La Pharmacie Française") (third donation) ...	5 0 0		
Miss Edith M. Ironie ...	2 0 0		
Mr. H. J. Kluge ...	3 3 0		

Subscriptions to the Fund should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited, and sent to Dr. H. A. Des Vœux, 14, Buckingham-gate, London, S.W.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments, &c., kindly contributed by the following gentlemen since the publication of the last list:—

Dr. W. F. Gibb, Paisley; Anonymous; Dr. Wakefield, Northwood, Middlesex; Dr. Pickett, Croydon.

THE WAR.

THE CASUALTY LIST.

When H.M.S. *Formidable* was sunk in the English Channel in the early hours of New Year's Day her three medical officers were on board, and the Admiralty assumes that they have lost their lives. Their names are: Fleet-Surgeon Godfrey Taylor, R.N.; Surgeon William Mearns, R.N.; and Surgeon Septimus Hibbert, R.N.V.R.

THE AMBULANCE CONSTRUCTION COMMISSION.

This is the first great war in which field motor ambulances have been extensively used. It was inevitable that many defects should be found in existing types, and in various quarters experts began to ask whether something could not be done to standardise the patterns and to improve the type. At the instance of Mr. Henry S. Wellcome, founder of the Wellcome Bureau of Scientific Research, a commission has been formed, and the names of members show that the matter is regarded as of high importance by those most intimately connected with the welfare of the wounded soldier.

Sir Frederick Treves will act as chairman. The Admiralty is represented by the Director-General of the Medical Department, R.N., Surgeon-General Sir Arthur May, while the Quartermaster-General to the Forces, Major-General Sir John Cowans, and the Acting Director-General, Army Medical Service, Surgeon-General Sir Alfred Keogh, represent the War Office. The British Red Cross Society is represented by Sir Frederick Treves, and the St. John Ambulance Association by Sir Claude Macdonald and Sir John Furley. The remaining members are Lord Montagu of Beaulieu, Professor W. E. Dalby, F.R.S., Mr. John Robertson, and Dr. Andrew Balfour (honorary secretary and treasurer). This commission will act as a judging committee for the award of prizes of the value of £2000 provided by the Wellcome Bureau of Scientific Research. These prizes are offered for the best designs of an ambulance body which shall fit a standard pattern motor chassis for field motor ambulances. The last day for the receipt of competing designs is June 30th, 1915. It is hoped that the competition will bring in a number of ingenious designs from which the ideal field ambulance body will be evolved.

The reason why the competition is restricted to designs for a body and not for the complete ambulance, including a chassis, is that a chassis takes much longer to build than a body, and that, when war breaks out, it is impossible to get at short notice anything like a sufficient number of any one type of chassis. On the other hand, a standardised body to fit any chassis of approved dimensions can be constructed in numbers at comparatively short notice. Moreover, a perfected body is badly wanted to ensure complete comfort for the wounded.

It is hoped that the information obtained by the competition, and in other ways, will be published in some permanent form, available for future reference. Probably, in addition to one design of special excellence, there will be submitted various ingenious suggestions which may be incorporated in the pattern design approved by the commission. For these a portion of the prize money has been set apart. The first prize is of £1000, the second of £500, and the third of £300. All details of conditions may be obtained from the secretary, the

Ambulance Construction Commission, 10, Henrietta-street, Cavendish-square, London, W. The competition is open to citizens of all nations, and designs may be submitted up to June 30th, 1915.

FRENCH STATISTICS OF THE WOUNDED.

The French Army Medical Service recently published figures showing the percentages of French soldiers wounded in the present war who are, or are likely to be, fit to return to active service. The approximate percentages up to Dec. 1st last were given as follows:—

	Per cent.
Wounded but now returned to the front ...	54.50
Wounded and on convalescent leave ...	24.50
Wounded and under treatment in hospital...	17.40
Discharged as unfit for further service ...	1.46
Died from wounds ...	3.40

It will be noted that these add up to more than 100. A former member of the Cabinet has written to us suggesting that corresponding figures, showing the mortality from wounds and the percentages of complete and partial recoveries in the British Expeditionary Force, would be of profound interest to medical men and military students. We hope the Army Medical Department may be willing to furnish such returns.

THE BRITISH RED CROSS SOCIETY.—In its summary of work accomplished during the week ending Jan. 2nd the British Red Cross Society states that the number of auxiliary home hospitals accepted by the War Office to date was 662, containing 18,418 beds, including 1124 accepted during the past fortnight. The following additional ambulance cars were despatched: 8 ambulances, 1 touring car, 1 soup kitchen, and 1 motor cycle to Dunkirk; 2 ambulances and 1 touring car to Boulogne; 1 ambulance to Southampton; and 4 ambulances to Bishop's Stortford. Five medical men have been engaged for service in Serbia and two for Montenegro, and are ready to leave when required. During the past fortnight the Red Cross hospital at Netley has been very full, and a number of entertainments were held at Christmastide. The contractors have begun work upon the "Irish Hospital." Between Dec. 29th and Jan. 2nd 712 cases from the stores department were supplied to 98 hospitals—67 English hospitals and 31 foreign hospitals—and a large number of garments were received and distributed. A list is received daily by the society from Boulogne containing the names of officers reported missing, and reports from brother officers or soldiers stating what they know about these. When the reports are considered reliable they are forwarded to the relatives, and copies are also sent to the War Office. Every wounded man journeying to England is handed a postcard on the boat, whereon he gives the name of the hospital to which he is going, and this enables his relations to find him at the earliest opportunity. A great number of daily callers are received inquiring for missing officers, and every endeavour is made to trace these through the Paris or Boulogne offices. Daily correspondence is maintained with Geneva, the Prisoners of War Bureau, and the Allies Relief Committee.

AUSTRALIAN MEDICINE AND THE WAR.—Our Melbourne correspondent writes, under date of Nov. 23rd:—"The departure of the first Australian contingent was accomplished without serious accident. The health of the men had been good while at the training camp. In a force of about 8000 there were some 60 cases of measles, this disease being prevalent then. These were treated at the Infectious Diseases Hospital, Fairfield. Several deaths occurred in the Melbourne Hospital from pneumonia among soldiers transferred from the camp. The Australian hospital unit is about to leave next week. It will occupy a ship under Red Cross conditions for the voyage and will require no convoy. A staff of 780 people will be on board, which will be subsequently divided among the different hospitals to be established. Particulars have already been given as to these.¹ A further contingent of men is now in training.

¹ THE LANCET, Oct 24th (p. 1025) and Dec. 5th (p. 1334), 1914.

The Melbourne University held a special final examination for any students who were anxious to volunteer for service and whose period of work was satisfactory. No concession was made as to standard of pass work. Four candidates presented themselves and all were passed. Several very well known members of the Victoria profession are included in the hospital unit about to leave. They are Dr. Henry Maudsley, Dr. J. W. Springthorpe, Dr. G. A. Syme, Dr. T. P. Dunhill, and Dr. J. W. Barrett. On Nov. 21st the departing Victorian medical men were entertained by the members of the Victoria Branch of the British Medical Association at a farewell dinner. Complimentary speeches were made, and Dr. Springthorpe stated that on the best authority he was able to say that Australia had contributed more money to the Red Cross Association in proportion to population than any other community. The Australian Medical Federal Council opened a subscription list for the supply and maintenance of motor ambulance facilities for the Australian hospital unit. Already over £700 has been subscribed by medical practitioners, although the fund is only a fortnight old.

CARE OF THE WOUNDED IN EDINBURGH.—Our correspondent writes: "100 wounded and disabled soldiers drawn almost entirely from Scottish regiments arrived in Edinburgh from Southampton on Dec. 31st. The majority of them had come direct from the firing line, and many still had the mud of the trenches on their coats, kilts, and puttees. They complained of the weather and of the condition of the trenches, but were enthusiastic about the way in which they were being treated as regards clothes, food, comforts, reliefs, &c. Of the 100 men about half were wounded, and the remainder were suffering from frost-bite, rheumatics, or pneumonia, testifying to the rigorous conditions under which the war operations are being conducted. Several members of the 8th Royal Scots (T.F.) were among the number. The 100 men were distributed as follows: Craigleith Military Hospital, 50; Dalmeny House, 35; and the Deaconess Hospital, 15. For the purpose of stimulating recruiting for all the battalions of the Royal Scots regiment, and for enrolling the names of men eligible for a 'Bantam battalion,' for submission to the War Office after the Royal Scots regiment is up to establishment and organisation, has been formed, with Lord Rosebery as prime mover. Rest-rooms for sailors and soldiers have been opened at No. 9, Croall-place, Leith-walk, under the auspices of the Edinburgh Branch of the British Women's Temperance Association, and are provided with comfortable club-rooms where leave time may be spent."

THE TREATMENT OF CHOLERA.—Dr. A. G. Newell, of Assam, has published¹ particulars of four cases of Asiatic cholera at Lahore treated with tincture of iodine internally. Three of the cases recovered, two being natives and one a European (female); these were adults. The fourth case, an infant of 18 months, died. The adult cases were severe ones, and were proved bacteriologically to be true cholera. The dose administered was one minim of tincture of iodine in water every hour or half hour until decided amelioration of the symptoms, and thereafter at longer intervals until recovery. Dr. Newell found that the germicidal action on cholera vibrios was distinct, even in a 1 per cent. solution of tincture of iodine, about equal to 1 in 4000 of iodine, after 24 hours, and in a 10 per cent. solution after 10 minutes. This shows the theoretical efficacy of iodine and that the treatment is rational. Iodine tincture allays vomiting and acts as a disinfectant. It is of course impossible to draw any conclusion from four cases, and as the outbreak was coming to an end the type of case would naturally tend to become milder and more amenable to treatment.

VACANCIES FOR MEDICAL OFFICERS.—We are asked by the Assistant Director of Medical Service of the 1st London Division, Territorial Force, to state that there are vacancies for several medical officers in the field ambulances of the 1st London Division, T.F. These units are now training at their war stations, and the rank and file are of exceptionally good quality. Officers must be duly qualified and registered medical men. Applications should be made by letter or in person to Colonel J. Harper, A.D.M.S., 1st London Division, T.F., Headquarters, Lea, Crowborough,

¹ The Treatment of Cholera, a Cure, by A. G. Newell, M.D. Lahore: Civil and Military Press. 1914. Price Rs.1.8.

Sussex, and will receive an immediate reply. Captain C. G. Kay Sharp asks us to state that his unit—the Eastern Mounted Brigade Field Ambulance (Reserve) R.A.M.C. (T.F.), stationed at Luton, Beds.—requires three medical officers to bring it up to the full war establishment. Applications should be made to the officer commanding the unit, at Luton. There are still a few vacancies for officers in the 2nd East Anglian Field Ambulance Reserve unit. Pay and allowances will be as in the regular Royal Army Medical Corps, and immediate application should be made to Lieutenant-Colonel Blake Masson, 148, Broadway, Peterborough.

THE UNION JACK CONCERT PARTY.—"Will you help the Union Jack Concerts?" is the question which Miss Helen Mott (violinist) and Miss Florence Castelle, writing from Dr. and Mrs. F. W. Mott's house, 25, Nottingham-place, London, W., put to our readers, and through them to the public, supplying excellent reasons why the answer should be in the affirmative. The Union Jack Concert Party provides a weekly entertainment to wounded soldiers and sailors in military and other hospitals, and also assists at least two or three different necessitous artists at each concert, by giving them a small fee for their services. Concerts have already been given at the 4th London General Base Hospital, Denmark Hill; St. George's Hospital; 1st London General Base Hospital, Camberwell; St. Bartholomew's Hospital; 2nd London General Base Hospital, Chelsea (Christmas Eve); University College Hospital, and Queen Alexandra Hospital, Millbank (New Year's Day), at which the following well-known artists, amongst others, very generously came and gave their services: Miss Ellaline Terriss, Mr. Ben Davies, Mr. Lewis Sydney, Mr. Nelson Jackson, Miss Ruby Helder, Mr. Harold Montague, Mr. Ernest Shand, Miss Cicely Courtneidge, Mr. Harry Tate, Miss Wish Wynne, Mr. Albert Whelan, Miss Violet Loraine, Mr. Harrison Hill, Mr. Jock McKay, Miss Margaret Balfour, and Mr. Jack Pleasants. During the next few weeks the Union Jack Concert Party will be going to: the Dreadnought Hospital, Greenwich; 3rd London General Base Hospital, Wandsworth; Royal Free Hospital; Queen Alexandra Hospital; and Great Northern Hospital. Anyone who could see the keen appreciation and enjoyment of the "Tommies" during these little performances would, we are sure, gladly support the work. All contributions will be gratefully acknowledged by Miss Helen Mott and Miss Florence Castelle (25, Nottingham-place, London, W.), who are acting as honorary secretaries as well as giving their artistic aid.

THE TREATMENT OF SO-CALLED "FROSTBITE."—Dr. J. Porter Parkinson, senior physician to the Queen's Hospital for Children and to the London Temperance Hospital, has sent us the following brief note:—"During the past few weeks large numbers of soldiers have been invalided from the front suffering from a painful affection of the feet due to prolonged standing in the trenches. Several of them have told me that after having been 24 or 48 hours in the fighting line they were removed to rear trenches where they took off their boots and socks and warmed their feet before a fire. The feet became numbed and exceedingly painful, the pain extending up the portion of the leg covered by the boot and above the ankle. On admission to hospital there is little to see as a rule, the foot may appear slightly congested, with prominent subcutaneous veins. But at night, when the pain is greatest, some slight swelling and blueness of the feet is visible. Though feeling numb, there is no anaesthesia to touch, prick, heat, or cold. In addition there is often a superficial gangrene of the skin at the extremity of the big toe or one of the other phalanges. The condition resembles erythromelalgia, and is no doubt due to prolonged damp and cold acting on the vasomotor and sensory nerves of the feet.

I would suggest that as soon as possible after the soldier is relieved from the trenches the feet be thoroughly rubbed to restore circulation and not be heated artificially before a fire; and such orders might be given by the commanding officer, who could point out the danger of omitting it. As regards treatment of the cases, elevation of the feet by a pillow under the lower part of the legs is a great comfort, while I have had real success from the administration of antipyrin grs. x. with aspirin grs. xv. thrice daily. The result is that the pains in the feet are usually quite gone in 48 hours."

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ALEXANDER, W. H. M., M.B., C.M. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Crowle District of the county of Lincoln.
 BUSHNELL, F. G., M.D., D.P.H., has been transferred as Tuberculosis Officer and Deputy Medical Officer of Health to the County Borough of Plymouth.
 ELLIS, L. BRASMUS, M.D. Brux., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Physician to the Johannesburg General Hospital, Johannesburg, South Africa.
 GRANTHAM, H., M.B., B.S., has been appointed House Surgeon at the Swansea Hospital.
 NIMMKAR, V. D., L.R.C.P. & S. Edin., has been appointed Resident Ophthalmic Officer at the General Infirmary, Leeds.
 ROBINSON, GEOFFREY S., B.M., B.Ch. Oxon., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Royal Infirmary, Sunderland.
 SPENCE, R. J., M.B., B.Ch. R.U.I., has been appointed Medical Officer for Stewartstown Dispensary District and Medical Officer of Health of Stewartstown, county Tyrone.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE UNION WORKHOUSE.—Resident Assistant Medical Officer. Salary £150 per annum, with rations, laundry, and residence.
 AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board, washing, and lodging.
 BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £120 per annum, with apartments, board, and laundry.
 BARNSTABLE, NORTH DEVON INFIRMARY.—Female House Surgeon. Salary £100 per annum, with board, residence, and laundry.
 BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.
 BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.
 BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Senior and Junior House Surgeons. Salaries £110 and £100 per annum respectively, with residence and board, &c.
 BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
 BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
 BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Second Assistant Medical Officer. Salary at rate of £210 per annum. Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £160 per annum.
 SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. All with apartments, rations, laundry, and attendance.
 BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.
 BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.
 BRENTWOOD ASYLUM, Brentwood, Essex.—Locum Tenens Assistant Medical Officer. Salary £5 5s. per week, with board, attendance, lodging, and washing.
 BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
 BRISTOL, COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.
 BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
 BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
 BRISTOL, NORDRACH-UPON-MENDIP SANATORIUM, Blagdon.—Assistant Medical Officer. Salary £200 per annum, with board and residence.
 BURTON-UPON-TRENT COUNTY BOROUGH.—Assistant Medical Officer of Health. Salary £300 per annum.
 BURY AND DISTRICT JOINT HOSPITAL BOARD.—Assistant to Medical Superintendent. Salary £200 per annum, with board, washing, and lodging.
 BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
 CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salary £100 and £90 per annum respectively, with board, lodging, and washing.
 CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
 CARDIFF, KING EDWARD VII.'S HOSPITAL.—Female House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £140 per annum, with board, laundry, and residence.
 CARDIFF, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION.—Assistant Resident Medical Officer. Salary £250 per annum and maintenance.
 CHICHESTER, WEST SUSSEX COUNTY MENTAL HOSPITAL.—Second Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, and attendance.
 CITY OF LONDON UNION INSTITUTION AND INFIRMARY, 42, Clifden-road, Lower Clapton, N.E.—Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, rations, and washing.
 CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salaries £160 and £140 per annum respectively, with board, residence, and washing.
 CROYDON GENERAL HOSPITAL.—Senior House Surgeon. Salary £105 per annum, with residence, board, and laundry.
 DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.
 DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Salary £130 per annum.
 GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
 GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.
 GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.
 HIGHLANDS AND ISLANDS (MEDICAL SERVICE) BOARD, North Harris.—Medical Practitioner. Salary £300 per annum, with house.
 HULL CITY ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.
 KENT COUNTY COUNCIL.—Tuberculosis Officer. Salary at rate of £500 per annum.
 LANCASTER ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £120 per annum, with residence, board, attendance, and washing.
 LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.
 LEICESTERSHIRE EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
 LERWICK PARISH COUNCIL AND SHETLAND COMBINATION POORHOUSE COMMITTEE.—Medical Officer. Salary £78 per annum.
 LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £60 per annum each, with board, residence, and laundry.
 LIVERPOOL STANLEY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, residence, and laundry.
 LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.
 MANCHESTER CORPORATION.—Two Assistant Tuberculosis Medical Officers. Salary £350 each per annum.
 MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing. Also Locum Tenens, unmarried. Salary £6 6s. per week.
 MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.
 MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.
 MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Resident Surgical Officer. Salary £90 per annum, with board and residence. Also House Surgeon for three or six months. Salary at rate of £70 per annum, with board and residence.
 MANCHESTER, VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Female Resident Medical Officer for six months. Salary at rate of £100 per annum, with rooms, board, and laundry.
 METROPOLITAN ASYLUMS BOARD INFECTIOUS HOSPITALS AND SANATORIA.—Assistant Medical Officers, unmarried. Salary £250 per annum, with residential allowances.
 MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £85 per annum, with board, residence, and laundry.
 MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Surgeon Laryngologist.
 NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.
 NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.
 PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.
 QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary £80 per annum, with board, residence, and washing. Also Assistant Physician.
 ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—Assistant House Surgeon, unmarried, for six months.
 ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, washing, &c.
 ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Resident Medical Officer. Salary at rate of £150 per annum, with board and washing.
 ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Assistant House Surgeon for six months. Salary £20, with lunch and tea.
 ST. MARYLEBONE.—District Medical Officer to attend the Poor in St. John's District of the Parish. Salary £100 per annum.
 ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, M.—Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.
 SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.
 SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.
 SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.
 SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.
 SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SIDLAW SANATORIUM.—Resident Medical Officer. Salary £125 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SOUTH SHIELDS UNION, HARTON POOR-LAW INSTITUTION.—Assistant Medical Officer. Salary £200 per annum.

STIRLING DISTRICT ASYLUM, Larbert, N.B.—Female Third Assistant Medical Officer. Salary £140 per annum, with board, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, washing, and attendance. Also Locum Tenens Assistant Medical Officer. Salary as arranged, with apartments, board, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anaesthetist. Salary £110 per annum, with board, residence, and laundry.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried. Salary 6 guineas per week, with apartments, board, attendance, and washing.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £100 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST RIDING OF YORKSHIRE, CARDIGAN SANATORIUM, near Wakefield.—Assistant Medical Officer. Salary £250 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £125 per annum, with board, rooms, and laundry.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

WORKSOP VICTORIA HOSPITAL AND DISPENSARY.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, coal, light, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Barnard Castle, in the county of Durham.

Births, Marriages, and Deaths.

BIRTHS.

BENNETT.—On Dec. 30th, 1914, at Trelaske, Dallington, Northampton, Maude Elizabeth, the wife of Captain A. M. Bennett, R.A.M.C., of a son.

COOKE.—On Dec. 31st, 1914, at Berkshire Villa, Ventnor, the wife of Reginald T. Cooke, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

EMRYS-ROBERTS.—On Dec. 30th, 1914, at Romarys Radyr, Glamorgan, the wife of Professor Emrys-Roberts, M.D., of a son.

GAUNTLETT.—On Dec. 27th, 1914, at Oakhill-road, Putney, S.W., the wife of Lieutenant H. Leon Gauntlett, R.A.M.C., 6th Gloucester Regiment, of a son.

HOWITT.—On Jan. 2nd, at Chesham-street, Belgrave-square, S.W., the wife of A. B. Howitt, M.D., of a daughter.

MANNERS-RIDGE.—On Dec. 24th, 1914, at New River House, Enfield, Middlesex, the wife of the late Edwyn Manners-Ridge, F.R.C.S. Eng., Lieut. R.N.V.R. Lond., of a son.

MARRIAGES.

LATHBURY—BURTON.—On Dec. 30th, 1914, very quietly, at St. Andrew's, Eastbourne, Arthur E. A. Lathbury, M.R.C.S., L.R.C.P., to Lucy Burton, fourth daughter of the late John Burton, of Beckenham.

PEDLER—RIDEAL.—On Jan. 2nd, at All Saints Church, Finchley-road, by the Rev. J. W. Mills, assistant priest, George Henry Pedler, of 235, Knightsbridge, to Mary Alice, widow of Arthur W. Rideal, of 54, Finchley-road. At home, Knightsbridge Hotel, Feb. 2nd and 4th, from 3.30 to 6 P.M.

DEATHS.

HEDDY.—On Dec. 31st, 1914, at 29, Warwick-road, Ealing, W., Laura Mary, the dearly loved wife of Wm. Jackson Heddy, M.R.C.S. Eng., late of 46, Redcliffe-gardens, S.W.

KENNEDY.—On Dec. 28th, 1914, at Brigstock-road, Thornton Heath, James Price Kennedy, M.B., Ch.B.

LAING.—On Dec. 25th, 1914, suddenly, of heart failure, Ernest Alexander Ronald Laing, M.R.C.S., L.R.C.P., &c., aged 42 years.

LOCKERBIE.—On Jan. 3rd, at Nurse Porter's Nursing Home, Carlisle, William Lockerbie, M.B., Ch.B., of Annan, aged 37 years.

VAWDREY.—On Jan. 1st, at Plymouth, George Vawdrey, M.R.C.S., L.R.C.P., aged 67 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

EDINBURGH UNIVERSITY AND THE WAR.

A VERY interesting souvenir has been issued by the University of Edinburgh. It consists of the University's "Roll of Honour," in the form of a booklet containing the names of 16 members of the University who have died "pro patria," of 14 wounded, and of 2 prisoners, together with upwards of 1600 names of teaching staff, clerical staff, technical assistants, servants, and others, graduates and alumni, and present students, now serving their country in various arms and ranks. The total number on the roll at present is 1679, but the list is admittedly incomplete. The medical profession is naturally well represented. In the navy the University provides 85 commissioned officers, of whom four have lost their lives in action, while in the army there are 517 officers, 108 serving in the ranks, and 66 auxiliaries. "Our Lord Rector" (F.M. Lord Kitchener) forms an appropriate frontispiece.

THE PROBLEM OF SERVICE.

To the Editor of THE LANCET.

SIR,—How can the ordinary middle-aged medical practitioner be of use to his country in the present crisis? If he is willing to give up his practice, would he be acceptable for the R.A.M.C. if aged between 40 and 50; and if so, in what capacity or rank? Are commissions granted for special purposes—e.g., medical officer to hospital, recruiting, &c.—which do not involve leaving home?

I venture to think that some authoritative statement on the whole subject would be welcome to many of us who are anxious to offer such services as we may be capable of.

Jan. 1st, 1915.

I am, Sir, yours faithfully,
BARKIS.

* * The above is typical of a great many letters which we have received from readers during the past few months. The answer must depend on individual circumstances. A medical man of 40 who is strong and active and is not in regular practice might well apply for a commission in the Territorial Medical Service, in which there are still a number of vacancies for medical officers to reserve units. As stated in our last issue, the War Office is introducing greater flexibility into this branch of service, which should render it more attractive to medical men who wish to serve their country but are prevented from giving entirely unconditional offers of service.—ED. L.

MEDICAL NOTES IN HISTORICAL MANUSCRIPTS.

(Continued from p. 56.)

OUR readers were introduced last week to an interesting series of excerpts possessing a medical bearing and taken from family documents relating to the Harley family, which are now preserved at Welbeck Abbey. These excerpts covered a period of some 40 years, commencing from 1633. The series is now extended for a further half century—namely, to 1725.

Dr. J. Covell to Peter Dent.—"Constantinople, April 4, 1684.—Here hath been all this summer as hot a plague as hath happened in the memory of man. About the middle of August there dyed fifteen hundred a weeke and upwards, of all sorts, Turks, Jews, and Christians. I went abroad daily yet durst not venture to see any gardens either at Stromboli or Scutary. All our nation held very well. For my own part I took nothing but a good draught of wormwood-wine in the morning, and chewed zeduary as I walked abroad, and every afternoon punch—a liquor well known to seamen—was all our drink, whereof we took a good dose; and amongst other nations—whereof all had some dyed—it is certain that they that drunk hardest escaped best. I was not at all afraid, yet I have been in danger a thousand times, sometimes very desperately. One could not pass from our house to Galata without meeting the dead carried out. Most that died were poor people whose diet all summer is most upon cowcumbers, corpeoses—which are a sort of water-melon gourd—and such kind of trash, and they dyed like rotten sheep, not one in ten that were smitten escapt. . . . What you commonly talk in England of the Turks not shunning the plague I will assure you is true only in the mean people, which is the same among both Jews, Greeks, and Armenians. They value it not half so much as we do the smal-pox in England, never shun one another's company, only when they die very fast the corps is not accompanied with any or very few besides the priest, sometimes not with him. If a great man dies there is as great a funeral

pomp as if there was no more danger than in an ague; that is the truth; if in a dead man there can be danger, I think there is least in a dead Turk, especially a rich man then in any other, for they wash the body, though never so poor—and then with rowlers of wood squeeze out all the excrements they can; then after it is cleansed they stop all the passages with cotton. I always counted the cloaths more infectious than anything. The sick Turks this time fled into country houses and up the Bosphorus, and by their means the plague was scattered almost everywhere for 10 or 12 miles round. . . . We have an English apothecary here who went about daily. At last it fell in his house, and seized his wife's sister, too far for remedies to take place. She died, but his wife and several others escaped by your incomparable *bezoarticum animale*, whereof I have now had good trial. There was a little boy belonged to one of my Lord's servants formerly; the father came to me for something for it, telling it had convulsion fits. I asked him if it were not *morjack*—for so the Turks call the plague. He assured me no, no, but the next morning the boy was dead. He himself soon sickened; with a dose of your *bezoarticum animale* and a saffron water which I made here he recovered, and his wife likewise. In August he was smitten again—a thing I think very rare. He sought no more to me but died. Fear is a horrid companion in time of pestilence; I thank God I had banished that. . . . Your Jews all, and poor Turks, Greeks and Armenians, live so abominably nastily and in such narrow filthy streets and so many clustered together that it is a marvel to me that the plague should ever cease until it had swept them all away; yet it is now quite over and the streets so full of people as none seem to be wanting. . . . I suppose you have heard of their eating of opium. It is very true, and I assure you moreover I know one whom I have seen take the quantity of a hazel nut at a time, and he tells me he cannot live without doing it at least three or four times a day; and I have seen an Arab, that is a messenger sometimes between Aleppo and this place, take above a dram at one time by weight. It presently gives them *keif*, makes them exceedingly pleasant, but an hour or two after they are as dull as logs, yet I do not find in them any remarkable drowsiness at all. Many that are used to it, in their *romazan*—their fast—when it is death if it be known that anyone eats the least thing imaginable from sunrise to sunset, the forbearance of this, their *keif*, destroys them."

Abigail Harley to her Father, Sir E. Harley, at Brampton.—London, June 25, 1687.—My aunt Bromfield has spoken to Dr. Windebank concerning my mother drinking waters and his opinion is that all waters are very improper for a cancerous tumour. He says Hoxton waters would be least prejudicial, as there is nothing of alum or steel in them, but advises to meddle with none."

Edward Harley to Lady Harley.—London, July 7, 1688, a letter enclosing the following prescription for a water for an ulcerated cancer for his mother's use: "Scrape lead very thin with a knife, boyle it wel in good spring water, and with it frequently wash the sore. Let it be fresh lead every time you make it: the same will not serve."

Edward Harley to Sir Edward Harley.—Aug. 7, 1688.—Mr. Fisher has told me of a spring upon Malvern Hills that had cured some years since a cancer in a lady's breast, who came from London to use it. Since then it has grown famous for curing sores by bathing them there."

Sir E. Harley to Robert Harley, at Brampton.—"1689, Aug. 10.—Mr. Geldthorp sends in a box camomile flower, lime tree flower, and black cherry water for the child, to be mixed or taken singly, to remedy wind."

Robert Harley to Sir E. Harley.—"1694, Dec. 3.—My wife has sent some of the Countess of Kent's powder of her own making. If it be thought fit for my brother to take he may take as much as will lie upon a sixpence at any time of the day. The ingredients are Contrayaria Bizar, crab's claws, viper's-skin jelly, &c."

The Same to the Same.—"1694, Dec. 27. My Aunt Foley sayth she experiences a chain of gold about the neck is good to keep the throat clear."

Henry Guy to Robert Harley.—"1695, January.—Though I have the greatest mind in the world to come to see Mr. Harley—for I have had the small-pox and therefore cannot fear them—yet he is not so farre advanced in his recovery as to warrant him for much talking, for which cause I presume to give you the trouble of telling you the discourse which I have heard both learned and experienced persons make concerning the methods to be used at the departure of this disease. Some say that letting blood againe is good, but all agree that there must bee very often purging, for the infirmity which our King labours under came purely from not purging enough after it. They likewise say that after sufficient purging it is absolutely necessary, when he is in the country, to go into asses milke for six weeks, or some such rule, to rectify the whole figure of his blood which this distemper had corrupted."

Henry Guy to Sir E. Harley.—"1698, Sept. 20, London.—I am infinitely concerned at the unfortunate accident which has happened to your son, and the more because there were so many hours between his fall and the letting of blood, the only remedy for such a mischance, and which must be repeated to prevent fully any future ill in the head."

The Same to the Same.—"1698, Oct. 4, London.—Your letter gave me much ease of mind concerning your son, though I confess I do not like the bad blood appearing at the second bleeding. It plainly shows that there is bad blood to be fetched away. The head has suffered most in this accident, and the physicians say that the letting blood in the foot has the best effect on the head, and so likewise has cupping on the shoulders or back; but for the prevention of any future consequence nothing is so good as two issues in the shoulders just by the neck. This draws away all bad humours from the head and is a sure remedy against apoplexy, epilepsy, and many of those diseases."

Robert Harley to Sir E. Harley.—"1700, July 25.—I am extremely sorry to hear of your indisposition. I mentioned the doctor being against your bleeding, but he says you would find relief by blisters upon your arms, on the inside about the binding. I have now one on each arm from which I have found great relief."

The Same to the Same.—"1700, July 27.—Dr. Radcliffe desires you will not do anything more to your knees and legs than keep them warm. Blisters on your arms will relieve your breast. For the cough, besides the use of such things as conserve of roses, he commends the frequent use of ground ivy leaves made and drunk as tea, sweetened with sugar candy, as also the swallowing a clove of garlic often over night to preserve the stomach against goutish humours."

Dr. William Stratford, of Christ Church, Oxford, to Edward (afterwards Lord) Harley.—"1724, Oct. 14.—Yesterday I had the honour to hear from my Lady Oxford, with an account of her having been confined for a week to her chamber, and that she was going to Lady Paulet. Her Ladyship mentions not to me what her illness was, but if it was the cholic I am certain there is no other safe certain remedy for it but the Bath waters. Radcliffe [Dr. John], who would allow the Bath good for nothing else, owned it was a specific for the cholic."

The Same to the Same.—"1725, Oct. 21.—I hope the little one will have no gripes that are dangerous. I would only hint that our friend Radcliffe was for giving young babes as little as possible. He frankly owned he knew not what to do with them, and was for leaving Nature, if it were possible, to do its own work."

"QUI ME ALIT ME EXTINGUIT."

To the Editor of THE LANCET.

SIR,—The war is compelling us to manufacture our own drugs for ourselves. It may perhaps teach us to rely a little more on our native abilities and output in medical science. The British student, isolated from the Austro-German schools, may at last be induced in greater numbers to employ his own faculties in original research, instead of quoting foreign authorities and humbly swallowing the schematic dubieties of Frankfurt and Vienna. The notion that these schools are better than our own is certainly fostered by the self-satisfaction of the Germanic brain, which noises abroad its own contributions to science, while ignoring or belittling those of Britain and France. Yet the young graduate will be no worse off by remaining in London or Edinburgh and learning to respect his own nation, not as such, but for the sheer weight and splendour of its scientific achievements. He should then acquire self-trust and the power to think and work independently. And for encouragement let him invoke such august shades as those of Newton and Faraday, of Harvey and Hunter, of Syme, Young, Graves, Lister, and Darwin.

I am, Sir, yours faithfully,

EDMUND HUGHES.

Liverpool.

THE ROYAL NAVAL DIVISION.

WE have been asked by Lieutenant D. Bywater, R.N.V.R., Acting Adjutant of the Royal Naval Division Public School Battalion, to draw the attention of our readers to this battalion, which is being raised from among public school and university men between the ages of 18 and 35 for service during the period of the war. The strength of the corps will be 1000, and it is strictly limited to men who are included in the above definition. Medical men and medical students, in view of the special need for their present and future professional services, are very wisely discouraged by the military authorities from serving as combatants; but they can use their influence with others of their own class who are eligible to join such a *corps d'élite* as this Public School Battalion. Applications should be made to the Royal Naval Division, 6, 7, and 8, Old Bond-street, London, W.

EMERGENCY CLEANING OF INSTRUMENTS.

To the Editor of THE LANCET.

SIR,—Many years ago I found that the special indiarubber made for the use of typists, which I believe is a mixture of rubber and emery, was also good for cleaning rust spots off scissors, knives, and so forth, and also certain metal parts of the typewriter itself, and I have many times recommended its use, especially in emergency. Now and again I see it recommended in popular journals. The emery, or whatever it is, is in such a fine state of division that while it cleans well it does not scratch the instrument. I had occasion once to recommend it to a surgeon who was going to perform some minor operation, and he was well pleased with it and said that it was a new notion to him.

I am, Sir, yours faithfully,
London, January, 1915. TYPIST.

THE BRINE BATHS OF BIARRITZ.

IN addition to its climatic advantages Biarritz possesses brine springs, and there is a well-appointed saline bath establishment situated about 500 yards from the seashore on the road to Bayonne, in the centre of well laid out gardens. Every facility is given for treatment, which consists of baths, douches or shower baths, local applications in the form of compresses and irrigations, and massage under water. The waters are very strong and contain 307 grammes of salts (chiefly sodium chloride) per litre, or about 11 times the saline strength of sea water. The springs occur at Briscous, a few miles distant, whence it is conveyed to the elegant thermal establishment through pipes, the supply equalling 2000 gallons per 24 hours if required. The cases which receive benefit are chiefly those in anæmia, however caused, and so forth. The surroundings are attractive and the climate is described as, at the same time, bracing and sedative.

THE BRITISH PHARMACOPŒIA, 1914.

SOME of the wholesale drug houses have issued "Notes" on the new Pharmacopœia. Messrs. C. J. Hewlett and Son, Limited, 35 to 42, Charlotte-street, London, E.C., intimate that they will be glad to send a copy of their useful leaflet on this subject post-free to any medical man on request. It deals in a concise way with the additions, the notable omissions, and the principal alterations.

H. R. and A. H.—Something must be allowed for the general circumstances of the war, which, also, specially affected the publication in the direction complained of. The publishers have announced their intention of returning to the previous shape. The publication of an appendix would be a very expensive proceeding indeed.

Miss E. Piggott.—We cannot trace the quotation and there is no reference to the matter in our Analytical Records.

H. L. Morris and C. H. W.—See page 46 of our last issue.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

THURSDAY.

SECTION OF BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—Chas. W. Buckley, J. Campbell McClure): at 5.30 P.M.

Discussion:

The Value of Military Medical Baths (opened by Dr. Fortescue Fox).

N.B.—Members of the MEDICAL and SURGICAL SECTIONS are specially invited to attend and take part in the discussion.

FRIDAY.

SECTION OF ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.

Paper:

The Effect of Modern Projectiles on Tissues as Demonstrated by X Rays. Lantern slides and skiagrams will be shown.

Discussion:

(1) Methods for Localisation of Foreign Bodies; (2) The Treatment of Shell Wounds, &c., by Ionisation.

Members wishing to take part kindly send in their names to Mr. S. Gilbert Scott, 6, Bentinck-street, W., as soon as possible. Skiagrams for exhibition to be sent in the day before the meeting.

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—8.30 P.M., Council Meeting. 9 P.M., Hunterian Society Lecture:—Mr. D. J. Armour: Surgical Experiences during the Present War.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, Society's Rooms, West London Hospital, Hammersmith-road, W.

FRIDAY.—8 P.M., Cases of Wounds caused in the War will be shown. The following have promised to assist with Cases, X Rays, &c.:—Colonel Peterkin, Lieutenant-Colonel O. Robinson, Mr. A. Baldwin, Mr. McAdam Eccles, Mr. C. C. Choyce, Mr. T. Gray.

SOUTH-WEST LONDON MEDICAL SOCIETY, Bolingbroke Hospital, Wandsworth Common, S.W.

WEDNESDAY.—9 P.M., Mr. K. Goadby: Diseases of the Gums as they Affect the General Practitioner. (Lantern demonstration.)

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Discussion on Bacillary Dysentery (opened by Dr. H. S. Gettings).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Eye Department.

TUESDAY.—10 A.M., Dr. Robinson: Gynaecological Operations. Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 10.30 A.M., Dr. Simson: Gynaecological Demonstration. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3 P.M., Lecture:—Dr. A. Wylie: Diseases of the Larynx.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. W. K. Sibley: Lupus Vulgaris and Erythematosis.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Tuberculosis of the Skin and Lupus Erythematosis.

CHADWICK PUBLIC LECTURES, Lecture Hall, Royal Society of Arts, John-street, Adelphi, W.C.

FRIDAY.—5.15 P.M., Dr. F. M. Sandwith: War and Disease—I., Continental Wars of the Nineteenth Century.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed exclusively "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1914 will be ready shortly. Bound in cloth, gilt lettered, price 16s., carriage extra.

Cases for binding the half year's numbers are now ready. Cloth, gilt lettered, price 2s., by post 2s. 3d.

To be obtained on application to the Manager, accompanied by remittance.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 6th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 31	29"	S.W.	1.05	52	45	38	42	42	
Jan. 1	29.160	S.	0.35	50	46	38	38	40	Cloudy
" 2	28.840	S.W.	0.23	63	47	40	41	42	Cloudy
" 3	28.820	S.E.	0.49	48	44	39	39	41	Raining
" 4	29.020	W.	0.05	45	44	35	36	36	Sleet
" 5	29.605	S.W.	0.05	52	47	36	38	38	Foggy
" 6	29.850	S.W.	...	58	49	38	42	43	Cloudy

The following magazines, journals, &c., have been received:—

Interstate Medical Journal, Journal of State Medicine, La Clinique Ophthalmologique, Journal of the Royal Sanitary Institute, Therapeutic Gazette, Annali di Medicina Navale e Coloniale, Public Health, Practitioner, Medical Journal of South Africa, Homeopathic Record, British Dental Journal, New Zealand Medical Journal, Biochemical Journal, Canadian Medical Association Journal, Archives of the Roentgen Ray, Edinburgh Medical Journal, Nursing Record, &c.

- G.**—Dr. J. Gibson, Norwich; Dr. Alfred Gubb, Aix-les-Bains; Dr. J. Dundas Grant, Lond.; Sir R. J. Godlee, Bart., Lond.; Great Yarmouth Hospital, Hon. Sec. of; Dr. H. Gilliland, Whiteabbey; Mr. Wilfred Glegg, Birmingham; Dr. F. W. Giles, Shaftesbury; Gloucestershire Royal Infirmary, Gloucester, Secretary of; Dr. T. Wardrop Griffith, Leeds; Mr. John J. Grace, Lond.; Mr. H. E. Gough, Northwich; Messrs. Gale and Co., Lond.; Dr. E. Goodall, Whitechurch; Mr. H. G. Grattan, Lond.
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Remarks

ON THE

ESTIMATION OF PHYSIQUE AND STAMINA FOR SCHOOL PURPOSES.¹

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By "physique" we generally imply the attainment of such bodily structure and organisation as enables a person to put forth mechanical energy through the muscular system. By "stamina" we generally imply the capacity for sustained vital activity, particularly when endurance has to be sustained against disintegrating influences, whether of strenuous work or of disease. The two qualities, though often closely allied, are by no means identical. Thus the medical examination needed for the study of physique of the British soldier, for candidates for cadetship in the Naval and Mercantile Marine Service, or for enrolment in the municipal Police Force is concerned primarily with the exhibition of physical energy. On the other hand, medical examination in the case of candidates for participation in the benefits of a life assurance company, is concerned with stamina or stability. It regards capacity for resisting the disintegrating forces of the various diseases and accidents that occur in modern social life—i.e., the persistence of life rather than its power is under consideration.

The standards of physique hitherto prevalent have been largely those referring to adult life, or at least the later period of adolescence. When we apply such standards to children we are faced with the fact that, even if we succeed in measuring the present powers of children, we are still a long way from being able to estimate the powers latent within, for the forces of growth of the mental and physical powers of the child are both hidden and incalculable and never stand still. This is particularly the case at the early stages of their secondary education. At first sight the problem seems insoluble, but I think further study will suggest where we may get enlightenment, though not entire solution.

Standards of bodily growth as standards of physique.—Pignet, a French military surgeon, about 1900 made some studies of "robustness" of soldiers, and attempted to determine their physical force in terms of a formula which should express the relation between height, chest girth, and weight. This formula is known as Pignet's factor, and essentially consists in saying that if from the numeral indicating the height in centimetres there are subtracted the two numerals representing chest girth in centimetres and the weight in kilogrammes, a numeral is obtained which in the absence of organic disease bears constant relation to general bodily vigour.

Standards of nutrition are generally of more value for school purposes than standards of growth, at least for the early ages of life, for growth is only one of the results of nutrition. Standards of nutrition are particularly necessary when considerable numbers of under-nourished children exist in a group which is under review. Soup kitchens for the poor preceded the establishment of popular

national education in this country and abroad. In France school canteens were established as early as 1867. From the time that J. R. Mayer proved the physiological application of the doctrine of the Conservation of Energy, and the consequent interrelation of bodily nutrition and the manifestation of power, it was inevitable that the consideration of the work expended in all the forms of activity and in growth that occur during school life should be accompanied by attempts to estimate the capacity of the child attending a public elementary school in terms of bodily nutrition, particularly under those conditions in which it was evident that adequate provision for obtaining food did not exist in the home.

Standards obtained by grading according to type.

—A method of grading has been suggested by Mr. Cecil Hawkins,² mathematical master of Haileybury College, which I have used extensively and find of great value in detecting departures from proper growth. Mr. Hawkins has analysed some 40,000 measurements of height, weight, and chest girth of middle-class boys which he had collected. He grouped them into their proper ages of 6 months interval from 10 to 18 years. He has taken each group and separated it into 20 divisions, so that each division represents 5 per cent. of the total measurements for that age. There were therefore 5 per cent. of all the boys of that age who were of that particular height, weight, and chest girth. Each of these divisions was then named as Grade 1, 2, 3, and so on to 20, so that by looking up the index book you can see whether a boy was among the biggest 5 per cent., the next tall 5 per cent., or the lowest 5 per cent. We thus have the opportunity of grading any particular boy among his fellows of that particular age. If he is not normal, and his weight does not correspond with his height, his grading in the three qualities will not correspond. He may be among the tall boys for height and not among the heavy boys for weight. Moreover, if measurements be taken at successive periods of his life, say every 12 months, we can note whether the boy remains at one particular grade in his height, weight, or chest girth, at 12, 13, 14, 15; we can also note whether his weight or his chest girth, which was at one time in proportion to his height, begins to fall off at 16 and 17. This is a common result in boys who are specialising in scholastic work. The great value of this method of individual grading comes out when we desire to estimate the stress of school life during later adolescence. At 15, 16, and 17 the indoor life or the restricted food of the scholars begins to tell on bodily physique.

Estimates based on medical inspection of children.

—The estimates or criteria suggested by the experience of medical inspection and examination of adolescent children attending school and hospital tend to separate into two groups:—

1. Those which depend on the *rate and degree of bodily development*. Among these by far the most important, in my opinion, is the period of eruption of the permanent teeth, particularly the canines, the bicuspid, and the second permanent molars. There is considerable degree of variation in the age at which the several organs and systems of the body pass from their childhood to their adolescent stage. The eruption of the teeth is the least subject to disturbance, and one may safely say that if all the bicuspid and the second permanent

¹ An address to the Manchester Medical Society.
No. 4768.

² Physical Examination and Development of Public School Boys.
Medical Officers of Schools Association. J. and A. Churchill.

molars are well displayed by the age of 11½ to 12 years the child is well ahead in his physical development, and if some of them are delayed beyond 13 years of age, we should look out for signs of delayed development in other organs.

Standards of cardiac efficiency stated in terms of cardiac abnormality detected by ordinary physical examination of the chest are quite inadequate for school purposes and often misleading. The established methods of physical examination of the chest give us, it is true, certain information as to the existence of previous disabling disease. This information is, however, often misleading, and standards of cardiac efficiency based solely on it are often deceptive. This is particularly the case in auscultatory phenomena. Knowledge based on this does not sufficiently put us on our guard against the temporary cardiac and circulatory debility following acute febrile conditions such as influenza and tonsillitis. It does not tell us of damage done to the vasomotor apparatus by such diseases as diphtheria; nor does it guide us much in deciding upon the degree of efficiency of the heart muscle to withstand strenuous exertion. Dr. Clement Dukes long ago (Second International Congress on School Hygiene) wrote: "No physician can certify that the boy can run, although he may be able to say that he cannot."³

The principal school activities which call for cardiac efficiency are: (1) Gymnastic exercise, including Swedish exercise, apparatus work; (2) outdoor games and sports, running, jumping, and general school games, cricket, lacrosse, football, &c.; and (3) swimming.

Swedish exercises, as generally practised in schools, involve very little strain on the circulation, though they are capable of being carried to a considerable degree of severity under special conditions, but such excess is not a general rule. The exercises centre round respiratory and free limb movements. It may be said that almost any boy who is fit to attend school is also fit to attend the usual Swedish exercises, and yet medical certificates are constantly sent to school debarring boys from "all gymnastic work," which includes or is mainly composed of Swedish drill, to the great detriment of many who would be benefited by moderate exercise.

The strain that swimming exerts on the circulation is somewhat different, for there are here three facts to be considered. 1. The effort put forth by the good swimmer is much less violent and less rapidly exhausting than the effort put forth in ordinary racing and sports. This is owing to the buoyancy of the water, though in the case of a poor swimmer there is such excessive and useless expenditure of energy that the exercise may be violently acute. 2. There is a much greater demand upon heat production owing to the rapid radiation and conduction of heat from the body that occurs in the liquid as distinct from the atmospheric medium. Consequently the spare frame suffers more than the frame with better endowment of subcutaneous adipose tissue. 3. The natural reflex contraction of arteries and capillaries in response to the lowered temperature of the water causes the arterial blood pressure to rise, and in many persons causes the fingers to go white and numb. There is no real disadvantage if the immersion is only short, and if the vascular constriction gives way

rapidly when vigorous bodily movement outside the water is encouraged. If it does not give way speedily, bathing should be prohibited. Under any circumstances, where it occurs the use of the cold bath should be very much restricted.

Estimation of physique and stamina by examination of the respiratory apparatus.—The changes which occur during adolescence in the respiratory apparatus are equally well marked. The chest, which was circular in infancy, becomes slightly oval in childhood. It is difficult accurately to estimate the chest girth of a child under 8 or 9 years old, unless exceptionally well developed. The narrowness of the lateral diameter of the chest causes the shoulder blades to protrude so that the chest circumference varies with the position of the arms. The chest becomes still more markedly oval during adolescence. In the case of vigorous children, the ribs are held well forward and the costal cartilage, so that at each full inspiration the anterior part of the ribs tends actually to leave the sternum behind. As the movements take place freely and fully in all directions the bases of the thorax participate, so that on a lateral inspection of the bare chest we notice a vigorous lifting up and pushing forward of the whole sternum, instead of an antero-posterior flattening of an imperfectly expanded chest, whether this is associated with defective respiratory muscular power or with lymphatic enlargements causing obstruction to the entrance of air in the upper respiratory tract. In examining the chest of the young adolescent, then, we need to note the difference between a deep and a shallow thorax, and to note the degree of bending backwards of the upper or bending forwards of the lower portion of the spine that so often accompanies the rounded shoulders of those whose respiratory range is very limited.

Estimate of physique and stamina based on the condition of the musculature of neck and spine.—In regard to scoliosis in adolescent school life the significance of the milder forms is by no means clear. Many of them are physiological and are due to unequal development of the two sides of the body. Such require general outdoor existence. A certain limited amount of spinal weakness is due to pure fatigue in children who are of defective muscular power. Its occurrence during school life is generally ascribed to bad posture during school hours. In such cases I think it is wiser to turn attention first to school curriculum even before scrutinising minutely the school furniture, and to see whether the natural body balance cannot be restored by greater attention to physical development and change of occupation and position rather than by consideration of desks, seats, &c. Still more potent as a cause of minor spinal curvature and defective neuro-muscular control is the circulation of toxic products of disease, rheumatism being especially a frequent cause both of minor spinal curvature and flat-foot. It is quite rare to see these cases without an antecedent history of rheumatism, chorea, or tonsillitis.

Estimates of physique and stamina based on consideration of the general muscular build.—It is essential to have clear ideas of the width of the physiological range that exists in the development of the neuro-muscular system in different individuals, quite apart from the pathological results of past disease and ill-health. There are practically three natural physiological types of development of the neuro-muscular system.

³ See also School Athletics and Boys' Races, Wm. Collier. J. and A. Churchill.

1. Adapted for the exhibition of massive weight. The whole physical frame here is very big. The large muscles of spine, shoulder, hip and thigh, neck and upper arm are coarse-fibred and well developed. The movements are frequently slow, but they give one the impression of considerable power. This condition may occur both among the dull and the clever boys.

2. Adapted both for bodily agility and bodily strength. The bodily frame here is often less massive in build, though large and well knit. The muscles of upper arm and shoulder, though not big, are still well developed and full of tone, and are fitted for rapid and effective action. The neck is long and thick and well set on the trunk and the body held very erect. The chest, though not necessarily deep, has wide range of action; the difference between inspiration and expiration may be as much as 4 or 5 or more inches. Such a boy is a born boxer, swimmer, runner, or athlete, and will develop in any direction he chooses to train his powers.

3. The third type needs particular care and supervision during school life if he is ultimately to put forth his full innate powers. The larger limb muscles and the bony framework are comparatively feebly developed. The nervous energy, though it may be very considerable in amount, is irregularly distributed, and tends to manifest itself either in some special handicraft or in some special intellectual channel, such as great language facilities, or its near ally, the mathematical faculty, or great imaginative faculties. Here we need constantly to distinguish between sustained strength and short-lived excitability, for, with rapid expenditure of nervous energy, rapid exhaustion is apt to set in. The sense of fatigue that should precede exhaustion and warn us of its near approach is apt to be absent. Owing to the small size of the bodily muscles these children make a poor show when tested by nutritional standards or by standards of bodily physique. To understand them properly we need to remember that though their intelligence or their dexterity is well in advance of their fellows, yet other parts of their physical frame are often behind. They are as childish in some directions as they are advanced in others. We call them precocious children, and it is tempting to stimulate the growth of their brain instead of waiting for, what is for them even more necessary, the corresponding growth of their bodies. Such children are at a further physiological disadvantage. Being thin, they radiate heat very quickly, and consequently need a larger amount of food, particularly in the form of fat, than they often get. This is a great difficulty among the clever poorer class children, where the higher cost of the hydrocarbons is apt to be considered in the household budget.

It is in the direction of proper school treatment of such children that medical inspection of secondary schools often finds its hardest task. When tests of intelligence, of understanding, and of memory of these children are made, it is found that they range high. They show keenness in school, and the form master, who only knows them during school hours, is apt to rate their powers of sustained work as high as their ready response. Only the watchful parent realises how soon such powers are exhausted and what price is paid for school brightness. It is necessary to direct special attention to the time such children go to bed, for their lack of stamina causes their bodily powers to resemble those of children of a younger rather than of the older age. They need more sleep than their fellows of similar age.

Such boys also often retain the emotional qualities of childhood for a longer period than their less mentally endowed companions. This matter requires particular consideration when they are to be punished. They are often unbalanced and uncontrolled, and it may be actually backward in accomplishments other than those in which they show precocity. Most serious of all, such children retain the infantile susceptibility to bacterial invasions for a longer time than their more robust fellows, and at 10, 12, 13, and even 15 or 16, they are still unduly susceptible to the tonsillitis, rheumatism, sore throat, whooping-cough, and other germs which their tougher comrades more readily resist. Apart from their susceptibility to the tubercle bacillus, which, considering the opportunity for adequate nourishment and care that the middle-class boy now possesses, is not often a very grave school danger, we need to consider their susceptibility to the micro-organisms of rheumatism, with its endocarditis and chorea. For this class of boy I believe that an illness, such as general rheumatism, chorea, &c., may be even more serious than an infection of tubercle.

The physique of the modern secondary day-school boy.—It is sometimes stated that the increased urbanisation of modern life has led to a diminution in physique. A complete record has been kept of physical measurements of the boys at the grammar school since 1881. All the measurements for the years 1881 to 1886 have been collected and averages taken. Similarly, the measurements from 1905 to 1910 were taken. Altogether somewhere about 7000 measurements have been utilised. Careful comparison shows that the modern boy is taller, broader-chested, and heavier than the boy of a generation ago.⁴ He also maintains his level in athletic outdoor activities and more than maintains them in University attainments. (*Vide Physique of the Modern Boy*, Manchester Statistical Society, December, 1912.)

Manchester.

FROST-BITE.

By A. W. MAYO-ROBSON, C.V.O., F.R.C.S. ENG., D.Sc.,
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THE advent of severe weather accompanied by frost and snow has added another terror to war in the trenches in the shape of frost-bite of the feet, followed in many cases by gangrene and loss of one or more toes and occasionally by more extensive destruction of the feet. Experience in this country of the class of cases under consideration has hitherto been so limited that many surgeons of large hospital experience and the greater number of nurses have up to the present never seen or treated cases of gangrene due to exposure to cold.

In ordinary frost-bite the action of cold leads to death of the tissues by shutting off the arterial blood-supply, but as the obstruction of the blood-supply usually occurs slowly, venous stasis marks the early stages, so that the extremities—the parts usually affected—assume a slaty-blue colour, become numb, and are quite cold to the touch. Not only according to the degree of cold and the length of time the damaged parts are subjected to it, but also according to the treatment adopted to restore the circulation in the early stages, will be the degree and extent of the damage to the extremities. The effects of frost-bite may be

⁴ See tables published in annual report of medical officer to the grammar school, Manchester, 1910.

marked by mere congestion and cedema, analogous to chilblains of the feet, by more acute inflammation with blistering of the involved parts, or by gangrene more or less extensive.

The gangrene resulting from frost-bite is associated with venous stasis; it therefore assumes a dark brown and later a blackish colour, which clearly defines it from the living tissues. It often happens that parts apparently gangrenous may be only affected superficially, so that a toe may live and become useful an inch or more beyond the line of demarcation of the skin. Dark patches on the soles and heels are usually superficial and should be left to nature until separated, when the deeper layers of the skin that remain can be covered with epithelium.

In the treatment of frost-bite it is of the utmost importance to save as much of the injured extremities as possible, and as it is impossible to say how much of the damaged tissues will survive, immediate or early amputation is absolutely contraindicated. In some of the cases admitted to the Third London General Hospital the feet quite up to the ankle were livid in appearance, cold to the touch, and absolutely devoid of sensation three to four days after being frost-bitten, yet under treatment complete recovery, or recovery with gangrene limited to only portions of the toes, resulted. An important factor in producing tissue death in frost-bite is the destructive changes that take place in the blood corpuscles exposed to excessive cold within the engorged veins.

It is a well-known fact that the frozen parts cannot be subjected to the action of heat in any form without great risk, as too rapid thawing leads to inflammatory exudation and the danger of gangrene from pressure. Experience has shown that the best treatment at first is friction with snow or cold water in a cold room, the changes to a warmer atmosphere being gradually brought about. Frictions with turpentine and oil or with spirit and soap liniment are useful remedies in the early stage, and after the friction the limbs should be raised on pillows and swathed in cotton-wool, which can be held in position by bandages applied loosely so as to avoid any danger of constriction. If blisters form, or discoloration of the toes or other parts shows that gangrene is probable, the whole foot should be sterilised by rubbing with oil of turpentine to cleanse the skin or with spirit containing 1 in 500 biniodide of mercury, after which strips of sterilised double cyanide gauze should be applied between the toes and the same gauze made to cover the whole foot, which is then enveloped in sterilised cotton-wool. Any blisters—which will be found to contain dark blood-stained fluid—should be snipped and carefully dried and dressed with the spirit and biniodide lotion. Painting the foot with tr. iodine would probably be quite as effectual, as an antiseptic, as the spirit and biniodide solution.

Every effort should be made to keep the parts dry and sterile, and if gangrene occurs the surgeon should on no account make too great haste to amputate, as the tissues adjoining the line of demarcation become more and more healthy and the line of granulation tissue between the dead and living tissues, if kept aseptic, gives rise to little discharge and can be kept aseptic by a daily dressing with the spirit solution. Ultimately, when it is seen what flaps of skin are available, the dry, shrivelled gangrenous parts can be removed and the bones severed at such points as will allow the

flaps to be conveniently applied to make a good cover to the stump. Where the gangrenous process has only involved the superficial layers of the skin, the separation of the necrosed part should be left to Nature and afterwards skin grafting will be found useful. If as the result of neglect or the use of wet dressings the gangrene has assumed the moist variety and the wounds are infected, the spirit dressing will still be useful, and the foot should be well dusted with equal parts of zinc oxide and boric acid, so as to make every effort to convert the moist into dry necrosis, and thus to avoid general septic complications and the danger of the gangrene spreading.

In frost-bite, especially of the first and second degree, great pain is often felt, but when gangrene supervenes the pain may completely subside. The free use of opium or morphia proves beneficial, not only in the relief of pain and by securing sleep, but also by its effect on the circulation. My colleague, Captain F. H. Humphris, has been treating a number of our non-gangrenous cases by a daily application of static electricity, which seems to hasten convalescence by giving tone to the vessels and restoring the normal circulation in the feet.

Prevention.

The very fact that only a small percentage of those exposed to the same conditions of cold suffer from frost-bite would seem to show that the condition may be a preventable one, and if that be the case it behoves those who are responsible for the foot and leg gear of our soldiers to give the matter their careful consideration. Anything tight about the legs or feet that may impair the proper circulation of the blood—such as tight boots, which act by direct pressure, or too tightly applied puttees, which may possibly act by pressure on the veins returning the blood from the feet—must be injurious and may act as predisposing causes. Inadequate covering to the feet in the shape of faulty or worn-out boots or worn-out or too thin stockings act as direct causes, as wet feet chill quickly. If the feet get wet and the men have to stand for several hours in melting snow, which is a freezing mixture, the chances are very much in favour of them suffering from frost-bite. The danger might possibly be remedied by the wearing of high boots impermeable to wet by all men serving in the trenches. It would be interesting to know if the soldiers of other armies wearing long boots and not wearing puttees suffer equally with our men; this could doubtless be readily ascertained and might prove useful.

Finally, I would suggest that some instruction should be given to the men serving in the trenches both as to care in attending to the coverings of their feet and as to the avoidance of having anything too tight about their legs that may interfere with the circulation. I think it would be also useful if they could have a little instruction in the methods to be employed as first aids in case of frost-bite, for every case might be saved if properly treated in an early stage. The importance of the subject cannot be over-estimated, as we have lost, and are losing, a very considerable number of our men from this cause; and the fact that a very large percentage of those sent home will be unable to return and will have to be invalided out of the army and to be pensioned for life makes the matter one of the first importance to the country.

Since writing the above Sir Alfred Keogh has been so kind as to furnish me with the Army

Routine Orders, Nov. 23rd, 1914, a copy of which is appended.

353. FROST-BITE, PRECAUTIONS AGAINST.

Cold is likely to give rise to frost-bite when the circulation of blood is interfered with or rendered feeble.

The feet are likely to be frost-bitten under the following circumstances:—

1. When boots and puttees are too tight.
2. When the general circulation throughout the body is less active than normal.
3. When the socks, boots, and puttees are wet.

The best precautions are on the following lines:—

1. Boots should not fit tightly, but should be at least a size too large. When large boots are worn it is well to wear two pair of socks; but this is dangerous if the boots are small, as it leads to further pressure on the foot. Puttees should never be applied tightly.
2. The general circulation can be kept up by keeping the body warm and dry. A mackintosh sheet worn over the greatcoat is of assistance where no waterproof is available.
3. A dry pair of socks should be carried in the pockets when available.

Officers should see that dry standing is provided in the trenches whenever possible by means of drainage, raising of the foot-level by fascines of brushwood or straw with boards on top, or by the use of pumps where these are available.

RESULTS OF CLINICAL INVESTIGATIONS BASED ON THE METHODS OF ABDERHALDEN.

By J. O. GAVRONSKY, M.R.C.S. ENG., L.R.C.P. LOND.,
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THE first edition of Abderhalden's book on defensive ferments appeared in April, 1912, while a fourth edition of the same work, very considerably enlarged, was published in April, 1914. An English translation of the third edition was also published in the early part of 1914.¹ During this period the separate publications dealing with this subject have exceeded 300 in number.² These facts indicate very clearly the great interest shown by the medical profession in the problems connected with the ingenious theory evolved by Abderhalden as to the means of defence possessed by the animal organism against the invasion of disharmonious substances. Further, they show a marked appreciation of the importance of any possible application of his theoretical views to the practical side of medicine. No one has realised more clearly than Abderhalden himself that, once the possibility of a *specific* test was established, it was only a matter of time and perseverance before the application of the test would be extended in all possible directions. And when he considered that the methods worked out by himself and used for years in his studies on ferments generally—that is, the dialysation process and the optical method—were capable of demonstrating the existence of specific ferments in the case of pregnancy, he drew from this fact every possible conclusion as to the applicability of the test to the study of malignant tumours as well as to numerous other problems of medicine.

The practical value of the test has since been experimented with all over the world, and the cardinal question is still undecided. There is still,

and probably will be for many years to come, a considerable divergence of opinion as to the possibility of demonstrating the presence of specific ferments in the blood serum, and of making use of such demonstration for diagnostic and other practical purposes. Were this possibility once established we should attain the solution of many problems of primary and vital importance. It is not, of course, a diagnosis of pregnancy in the first week that is going to bring about a serious alleviation in human suffering; moreover, gynaecologists will readily agree that it is very rarely that they are in doubt as to the differentiating between an ectopic pregnancy and a salpingitis, or between a pregnancy of the first few months and a myoma. Of real importance would be the fact that one could make an early diagnosis of malignant tumours, or give a prognosis, after operation in a case of malignant disease, or differentiate between hysteria and epilepsy in doubtful cases.

For more than a year I have been examining patients with a view to assuring myself of the possibility of demonstrating specific ferments in the blood serum. The annexed table only shows the results of cases examined during the first six months of last year, from which time I have been able to work with an established technique and under properly favourable conditions, in a laboratory specially fitted up for the purpose and supplied with the best apparatus. During the first part of the time I had to struggle with many difficulties in trying to avoid the possible errors arising out of the complicated technique.

It is with great pleasure that I offer my thanks to Professor Abderhalden for the courtesy he showed me last summer on the two occasions that I visited his institute. I am also much indebted to the medical officers of the London Hospital, as well as to Dr. J. Kennedy Will, superintendent of the Bethnal Green Asylum, for their kindness in allowing me to examine their cases. Dr. P. N. Panton, director of the Hale Clinical Laboratory, has repeatedly undertaken the bacteriological control of sterilised water, serum, dialysates, and contents of polariscope tubes, and rendered much help both by his keen interest in the subject and his friendly assistance.

On the accuracy necessary in the employment of the technique no one has insisted more strongly than Abderhalden himself; and it has become customary for workers in this field to give a fairly detailed account of each stage of their procedure if they wish to avoid any suspicion of inaccuracy in method. Now, in dealing with this aspect of the case it must be remembered that all methods are based on details of two kinds—namely, such as are of primary and universal importance, and such as are secondary or personal only. Thus, if we are dealing with the estimation of the opsonic index, it is clear that the exactly equal amount of time given to the incubation of the actual test and of its control respectively is of primary importance; while the exact means employed in spreading the mixture of leucocytes, bacilli, and serum on the slide have only a personal interest. So, too, in the Wassermann reaction the preparation and standardisation of the antigen are of the first importance, but whether one uses a capillary tube or a test-tube when making a mixture of the necessary constituents will be a matter of personal preference only.

In Abderhalden's methods also there are several details of secondary importance. I shall not dwell on any of these secondary details, but shall only give an account of such as are obviously primary.

¹ Defensive Ferments of the Animal Organism (John Bale, Sons, and Danielsson), THE LANCET, May 16th, 1914, p. 1399.

² Out of this number only 14 have appeared in the English language, chiefly in the American medical journals.

Obtaining the serum.—The blood has always (unless otherwise stated) been taken from the patient about one hour before the midday meal, and therefore on an empty stomach. It was drawn off from the cubital vein by means of a dry needle, to which was attached a short length of rubber tubing, and passed into wide sterile centrifuge tubes fitted with a metal cap and having a capacity of 25 c.c. After standing for $1\frac{1}{2}$ to 2 hours it was centrifuged for half an hour in a good electric centrifuge, starting at a slow speed and gradually increasing to the desired rate. The serum was then poured off and again centrifuged for ten minutes. It was then carefully pipetted off, the small disc of red corpuscles at the bottom of the tube being left, still covered with at least 0.5 c.c. of the serum so as to avoid all risk of drawing up any of the corpuscles. The serum so obtained was practically always found, on microscopic and spectroscopic examination, to be quite free from formed elements or from any traces of hæmoglobin; and where such traces were found to occur the fact is noted under the experiment in question. When the investigation was first undertaken tubes were used of a capacity of only 10 c.c. In these cases it was found that the clot often adhered to the sides of the tube and did not come down to the bottom when centrifuged. Mechanical separation by means of a glass rod had to be resorted to, and hæmolytic sometimes resulted. This is avoided by using wider tubes of 25 c.c. capacity, and a relatively greater amount of serum can be obtained.

Dialysing tubes.—The tubes, No. 579A, of Schleicher and Schüll, of Düren, were used. They were always carefully tested for impermeability to albumin and for even permeability to peptones, and were never used more than three or four times without being re-tested. Occasionally the tested tubes of Schöps, of Halle, were used, but these were tested again before use. Impermeability to albumin was tested by means of the biuret reaction, and later the sulphosalicylic acid test was used as a control to the biuret reaction. In the case of the biuret reaction all danger of making a false personal estimate of the colour value was eliminated in the following manner. A friend, who knew nothing of the experiment otherwise, was given the numbered test tubes one by one, and his estimate of the colour noted down. The tubes were again given to him at random, and the values of his first, second, and even third estimates were compared for each tube. When these agreed between themselves one could have no doubt as to the accuracy of his estimate; and if the slightest suspicion of doubt arose the tube in question was rejected.

As concerns equal permeability to peptones they were not entirely satisfactory. If we take a 0.5 solution of silk-peptone and use 5 c.c. of this we get a strong reaction of the dialysate with 0.2 c.c. of ninhydrin; but it must be noted that in this case it is not possible to observe slight differences in the intensity of the colour reaction. But by using 2.5 c.c. of a 0.1 solution of peptone these differences become readily observable; and when this method was employed it was found that the tubes were not equally permeable to the peptone. The differences observed were very slight, yet even the same series of tubes on being retested would show a slight difference again as compared with the first testing. Thus they could be used only on the condition that no attention were paid to very slight differences of colour, marked differences alone being of any value.

Preparation of the organs.—Placenta was obtained immediately or shortly after delivery. Tumours were obtained from the operating theatre, and only exceptionally from the post-mortem room, in which case only fresh portions, showing no débris, were chosen. In all those cases where organs were obtained from the post-mortem room, only those were chosen in which the organs were normal (preferably cases of accident) and in which the post-mortem examination was held within 24 hours of death.

When obtained, fibrous tissue, blood-vessels, and nerves were cut away, and the remaining portion cut into small pieces or passed through a mincing machine. This was then washed under a stream of water on a sieve, while, by continuous squeezing with the fingers and with pestle and mortar, the blood was washed out, at the same time that the small bits of fibrous tissue and blood-vessels were carefully extracted. Then the tissue was suspended in water and again carefully searched for fibrous

tissue and vessels. In the case of the placenta this operation was completed within 4 to 5 hours; on a few occasions only was it necessary to leave the organ overnight in water, as it could not be entirely freed from blood by the end of the working day. Microscopic examination of the placenta, just before boiling out the dialysable substances, shows that it now consists chiefly of decidual cells, with, of course, a variable amount of fibrous tissue but no corpuscles or leucocytes. Suspended in water the pieces appear snow-white, and spread on wet filter-paper compare closely with this in colour—that is to say, they have a slightly greyish tinge. A true snow-white colour of the boiled organ was only obtainable by the use of the freezing method, the sections being cut to a thickness of 20 to 40 microns.

The organ was then boiled out six times, 3 to 5 drops of glacial acetic being added, on first boiling, for each litre of distilled water. After each boiling the tissue was squeezed out thoroughly. The organs were stored in distilled water with chloroform and toluol and the bottles put away in an ice-chest.

When these organs were tested by boiling them out with five times the amount of distilled water they were found to be quite free from dialysable substances in nearly every instance; very occasionally they had to be boiled out again. They were also found to be quite satisfactory when examined by the other tests described in the third edition of "Die Abwehrfermente." Somewhat more stringent tests are suggested in the fourth edition; the organs, when taken at random and subjected to these, still showed themselves to be completely free from dialysable substances. These latter tests may be illustrated by the following example: 3 gm. of the organ are taken with five times the quantity of distilled water and incubated for 24 hours. The water is then filtered off; the organ is then boiled for five minutes with the same amount of fresh distilled water, and this is then filtered through the same filter into the first filtrate. The combined filtrates are evaporated down to 1 c.c.; 1 c.c. of 1 per cent. ninhydrin is added, and the whole is boiled for one minute. No reaction, indicating the presence of dialysable substances, was ever obtained.

In the actual experiments the amount of organ used was always the same for each dialysing tube used in the experiment—namely, 0.1 or 0.2 grms.

Preparation of peptones.—In the preparation of peptones it was found that, after evaporating the neutralised fluid to a thin syrup, and adding methyl alcohol to this and heating it, some of it dissolves and precipitates subsequently with ethyl alcohol, but that a part is not dissolved and remains on the filter paper. In his fourth edition of "Die Abwehrfermente" Abderhalden points out that this may be used as well as the part that filters through. It dissolves readily in water, and is sometimes greater in bulk than the filtered portion. This part, however, was not made use of in this investigation. The peptones contained in it are obviously of slightly different constitution to those that pass through the filter, and it seemed desirable to use peptones of as equal constitution as possible. Otherwise it would certainly be advantageous not to reject them, since it is difficult to obtain much peptone from an organ. Thus in the case of squamous-cell carcinoma 7 patients were required to obtain 50 grms. of material, from which barely $3\frac{1}{2}$ grms. of peptone could be extracted.

The precipitate obtained with ethyl alcohol was dried either over sulphuric acid or over phosphorus pentachloride. In the first case the resulting powder was yellowish, in the second it was white. In either case a 5 per cent. solution of the powder was made up in physiological salt solution; and this agreed with Abderhalden's requirements in giving a rotation of -0.75° on the average, varying from about -0.90 to -0.60 .

The three-field polariscope of Schmidt and Hänsch was employed, with a heating apparatus attached. The heating apparatus was not standardised at first; it was subsequently found that there was a difference of 2°C. between the reading of the thermometer and the actual temperature round the slots on which the tubes rest during examination. This difference, however, has been of no importance, seeing that the tubes were always removed from the heating chamber immediately after examination, and replaced in the incubator.

Some further remarks concerning the technique have still to be made. As a guide to this part of the work the third

edition of Abderhalden's "Abwehrfermente" was made use of, as well as his separate articles in the periodical medical journals, chiefly the *Münchener Medizinische Wochenschrift*. Thus, for instance, as will be seen from the table, I began to use only 1 c.c. of serum for each test in the dialysation process as soon as I found that Abderhalden recommended this amount with the object of avoiding the appearance of a positive reaction in the dialysate of the control test. As regards details of technique recommended by other authors, I found it useful to employ the process suggested by Oeller and Stephan of preparing the organs by means of the freezing method. The method of freeing the organ from blood by washing out its blood-vessels can be carried out quickly and successfully in the case of lung tissue, but is not of much help in the case of other organs, seeing that one has to spend just as much time afterwards in freeing them by the usual method.

I did not make use of a "preliminary dialysis" (the Vordialyse of Abderhalden) as it does not seem to affect the result very much, seeing that if one uses 1 c.c. of serum the dialysate of the control practically always gives a negative reaction.

In the framing of the table of results the directions given in the fourth edition have been followed. Whenever the dialysate of the control test—serum alone—gave a positive reaction the result was still marked with a —, and the results of the other tests marked accordingly—that is, e.g., with a (+) instead of a + in the case where serum alone gave (+) and serum + organ gave +. To indicate that the dialysate of serum alone gave a positive reaction the amount of serum used has been figured in brackets. This certainly makes the reading of the results easier.

Besides the control of serum only, another control was usually put up—namely, serum, inactivated at 58° to 60° for half an hour, with the corresponding organ. This test does not appear in the table, as it only once happened that the corresponding dialysate showed a very slight reaction. I also tried on several occasions the use of guinea-pig and rabbit serum with the view of ascertaining myself the possibility of intensifying the original reaction by these means. Stephan found that the addition of guinea-pig serum makes the test much more strongly positive whenever a positive reaction is expected. Occasionally I obtained a slight increase in the intensity of the reaction by adding 0.1 c.c. of rabbit or guinea-pig serum to the test, but the difference is not sufficiently marked to attach great importance to this modification. Moreover, as I have used the optical method in conjunction with the dialysation process, it has seemed to me advisable to indicate the results obtained by each of these methods on one line, so as to permit of easy comparison.

The different peptones are indicated by letters: B = placenta peptone obtained from Höchst. A, A₁, A₂ = different placenta peptones prepared by myself. C = a peptone prepared from 7 cases of scirrhus of the breast. L = lung peptone, prepared from normal lung tissue. Li = liver peptone, from normal liver tissue. S = a sarcoma peptone, from a case of mediastinal sarcoma. W = Witte peptone. Si = silk peptone.

The table clearly shows that the results of this investigation do not confirm the possibility of demonstrating specific ferments when Abderhalden's directions are followed. The only conclusions we are justified in drawing are as follows: 1. The serum of pregnant patients contains proteo- and peptolytic ferments which are able to decompose any kind of coagulated albumin or peptone prepared therefrom. 2. Whenever proteolytic ferments are found in the serum of patients with malignant tumours or other diseases, they have the property of acting in the same non-specific manner. 3. The serum of perfectly normal individuals does not contain these ferments, at least in the great majority of cases. A negative result, when we attempt to demonstrate proteolytic ferments in suspected cases of pregnancy or carcinoma, speaks strongly against the existence of these states, and therefore may be of value in practice.

After having prepared more than 60 different substrates, and having observed constantly the results of numerous tests, I am strongly of opinion that the varying degrees of intensity in the resulting reactions depend mainly on the physical form in which the substrate is presented to the ferments. The more spongy the tissue, as in the case of placenta—that is to say, the more of its surface that can be exposed simultaneously to the action of the ferments—the deeper and the more decisive will be the intensity of the reaction. When, on the other hand, the prepared organ, as in the case of brain tissue, gives us pieces which are neither spongy nor dendritic in appearance, then the reaction is always less intense and more difficult to estimate, particularly so when the pieces are not sufficiently small.

And so it happens that a beginner, who has learned to prepare properly a placenta albumin, will obtain apparently specific reactions by examining only cases of pregnancy; he will get a positive reaction with placenta albumin, a negative one with other substrates—for instance, with carcinoma and with kidney albumins. But let him look at the appearance of his substrates and compare them. Only by repeated preparation does one learn to prepare the substrates according to Abderhalden's directions. Yet it is impossible, and everyone who has had personal experience in preparing substrates will agree to this, to make the carcinoma albumin appear in the same finely divided state that placenta albumin exhibits to the naked eye. Paradoxical as it may sound, the more one follows Abderhalden's directions in the preparation of the substrates the less one is likely to meet with specific reactions. A perfect placenta will give a positive reaction not only with a serum rich in ferments, as in the case of general paralysis in the last stages, or of old epileptic insanity with fits following on the top of one another, but also in a case of pulmonary tuberculosis that may fail to react with placenta prepared in a less elaborate way.

Besides the placenta peptone put on the market by Höchst, which, as can be seen from the table, has proved to be a far from infallible reagent for testing pregnancy, there are other preparations brought on the market by some people who are apparently in a great hurry to make the best out of Abderhalden's promising scientific work without even taking the trouble of giving to the "carcinoma extracts," &c., the proper external appearance that a reagent should have when prepared according to Abderhalden's instructions. Abderhalden himself is of opinion that it is premature, while the whole question is in the experimental stage, to put on the market any "diagnostica." I think that they can do even more harm to the field of research in question than those profound articles in which authors report on so many cases of pregnancy or tuberculosis examined without taking the trouble to examine even one normal case, or articles where every result of an occasional test is followed by learned deliberations about the rules for diagnosis, prognosis, and treatment of disease to be drawn from it.

The future will show how far the investigation of the serum for the presence of proteo- and peptolytic ferments will be made use of for the routine work of clinical examination. There is no doubt about the great service rendered by Abderhalden to the science of physiology and to medicine by introducing and

Table showing Results of Clinical Investigation.

No.	Dialysation process.		Optical method.	Diagnosis.
	Amount of serum used.	Serum +		
1				
2	1.5 -	Pl. (+), B.E. -, C.B. -	B + ('05), C + ('06)	Carcinoma of breast in a male.
3	(1.5) -	Pl. + +, C.B. -	C + ('05)	Pregnancy, normal, primipara, eighth month. Serum 3 days old.
4	1.5 -	Pl. +, C.B. -	A + ('05)	Puerpera, normal, third day.
5	1.5 -	Pl. +	A + ('06), C + ('09)	Pregnancy, normal, in labour.
6	1.5 -	Pl. +, C.B. -	A - ('02)	Pregnancy, normal, in labour.
7	1.5 -	Pl. ((+)), C.B. ((+))	A - ('03)	Puerpera, third day, normal.
8			A + ('06)	Hæmorrhoids, male, healthy, age 31, before operation.
9	(1.5) -	Pl. + +	A - ('04), C + ('07)	Eczema.
10	+1.5 -	Pl. +, C.B. +	A - ('02), C + ('04)	Puerpera, normal, 24 hours.
11	+1.5 -	Pl. +, C.B. -	B + ('05)	Carcinoma tongue, age 64. Operation 1904 for carcinoma right side of tongue. Now carcinomatous ulcer left side of tongue.
12	(1.5) -	Pl. +, C.B. -	B - (0)	Puerpera, 2 hours post partum, primipara.
13	+1.5 -	Pl. + +	B + ('05)	Pregnancy, normal, seventh month.
14	1.2 -	Pl. +	A + ('09)	Pregnancy, normal, seventh month, primipara.
15	(1.5) -	Pl. + +	A + ('05), B + ('05), C + ('06)	Pregnancy, normal, seventh month.
16	+1.5 -	Pl. +, S.M. + +	A - ('02), B + ('04), C - ('03)	Pregnancy, normal, eighth month, primipara.
17			A + ('06), C - ('02)	Pregnancy, normal, sixth month.
18			B + ('06), C - ('02)	Fractured patella, male, aged 38.
19			B - ('02), C + ('07)	Left inguinal hernia, male, aged 43, 2 days after operation.
20	(1.5) -	Pl. +, C.B. -, Lg. -, B.E. -	A + ('05), B - ('03), C - ('01)	Pregnancy, ninth month.
21	1.0 -	Pl. + +	A + ('05), B - ('02), C + ('07)	Pregnancy, normal, multipara, ninth month.
22	1.5 -	Pl. + +, C.B. (+), Lg. +, B.E. -	A - ('03), B - ('03), C - ('01)	Pregnancy, normal, primipara, second month.
23			A + ('05), B - ('02), C + ('07)	Pregnancy, normal, ninth month, multipara.
24	1.0 -	Pl. -, Br. -, Lv. -	A - ('03), B - ('03), C - ('01)	Carcinoma of breast.
25	1.5 -	Pl. -, Lv. -	A + ('05), B - ('03), C - ('02)	? Twisted ovarian cyst. ? Tubal pregnancy. Patient operated.
26	1.5 -	Pl. -, St. -, Lv. -		Diagnosis, ovarian cyst.
27	1.5 -	Pl. -, St. -, Br. -	B + ('07), C - ('01)	Gonorrhœa, male.
28			A + ('07)	Sycosis, male, treated with staphylococcus albus and acne vaccine. Serum, hæmolytic.
29	1.5 -	Pl. -	B + ('07), C - ('01)	Pregnancy, normal, seventh month.
30	(1.5) -	Pl. + +, Lv. (+)	A + ('07), C + ('06)	Pregnancy, normal, ninth month, primipara.
31	1.5 -	Pl. +, Lv. +, M. -	A + ('07), C + ('06)	Pregnancy, normal, eighth month, primipara.
32	(1.5) -	Pl. -	A + ('05), B + ('06), C + ('05)	Pregnancy, normal, sixth month, multipara.
33	(1.5) -	Pl. ((+)), C.B. -	A - ('03), C - ('03)	Pregnancy, normal, seventh month, multipara.
34	(1.5) -	C.B. (+), St. -	A + ('05), B - ('03)	Hernia, male. Operated 2 days before examination.
35	1.2 -	St. -	A + ('05), B - ('03)	? Ectopic gestation. ? Salpingitis. Patient operated next day.
36	1.5 -	Pl. +	A + ('06), C + ('05)	Diagnosis, salpingitis.
37	1.5 -	Pl. -, C.B. -, Lg.M.	A + ('05), C + ('04)	Carcinoma of breast. Chronic nephritis.
38	(1.5) -	Pl. -, Lg.M.		Patient treated with staphylococcus vaccine.
39	1.5 -	Br. +, Ts. (+), Ov. +		Eclampsia.
40	1.5 -	Pl. +, Br. ((+))		Hæmoptysis, male, aged 52. Cause? Ultimate diagnosis, cirrhosis of liver.
41	1.5 -	Pl. +, Br. -	A + ('05)	Periostitis of orbit.
42	1.5 -	Br. +, Ts. + +	A + ('05)	Dementia præcox, male.
43	1.5 -	Pl. + +, C.B. -, M. +	A + ('05), B + ('05)	Pregnancy, normal, eighth month, multipara.
44	1.5 -	C.B. -, M. -, Lv. -, *C.Lv. -	C - ('03)	Pregnancy, normal, ninth month, primipara.
45	1.5 -	Pl. +, C.B. -	A + ('04), B - ('03)	Pregnancy, normal, eighth month, primipara.
46	1.5 -	Pl. +, M + +, Lv. +, C.Lv. +	B + ('05)	Epileptic, fit previous night, female, aged 55.
47	1.5 -	Pl. (+), C.B. -	B + ('05), C - ('03)	Carcinoma of the head of pancreas, jaundice, cachexia. Diagnosis confirmed by microscopical examination.
48	1.5 -	Pl. ((+))	A + ('06), B + ('04), C + ('04)	? Carcinoma, abdomen. Result, no malignant disease.
49	1.5 -	Pl. ((+))		Parturition, normal, 2 weeks.
50	(1.5) -	Pl. +, M. + +		Pregnancy, normal, seventh month.
51	(1.5) -	Pl. +, Br. -		Salpingitis. Oophorectomy 3 weeks ago.
52	(1.5) -	Br. (+), M. + (+), Lv. (+)		Aneurysm, male, aged 40.
53	1.5 -	Br. -, C.Lv. -		Hydatidiform mole, operated. ? Malignant. Result, no chorion epithelioma.
54	1.5 -	Br. +, Lv. + +		Pregnancy, normal, primipara, seventh month.
55	1.5 -	Br. (+), Lv. (+), M. +		Pregnancy, normal, primipara, ninth month.
56	1.5 -	Br. (+), Lv. (+), M. + +		General paralysis of the insane, male.
57	1.5 -	Br. -, C.Lv. -		Mania, chronic.
58	1.5 -	Br. -, Ts. +		General paralysis of the insane.
59	(1.5) -	Pl. (+), Br. (+), C.B. (+)		Epilepsy, insanity, fits on two previous nights.
60	1.5 -	Pl. +, Br. -, Lv. -		Epileptic, insanity, last fit 6 weeks ago.
61	1.5 -	Pl. + +, Br. -, C.B. + +		Abdominal tumour. Diagnosis? Operated, ovarian cyst.
62	1.5 -	Pl. + +, Br. +		Dementia præcox, male.
63	1.5 -	Pl. + +		Pregnancy, normal, primipara, sixth month.
64	1.0 -	Pl. -		Pregnancy, normal, eighth month, primipara.
65	1.5 -	C.B. + +, S. +, Lg. -		Fractured patella, operated 1 week previous to examination.
66	1.3 -	C.B. ((+)), S. +		Serum hæmolytic.
67	1.5 -	C.B. -, S. -, Lg. -		Pregnancy, normal, sixth month, primipara.
68				? Ovarian cyst. ? Tubal pregnancy. Operated, tubal pregnancy.
69				Bleeding started 4 weeks previous.
70				Fibromyositis.
71				? Sarcoma vertebræ. ? Carcinoma. Result, sarcoma.
72				Mediastinal sarcoma.
73				? Mediastinal tumour. Result, sarcoma.
74				Prolapse.
75	1.0 -	Pl.h. -, Pl.s. +, M.h. (+), M.s. -, Ty. -, Tm. (+), Ts. (+)		Chronic pulmonary tuberculosis, T.B. present, male.
76	1.0 -	Pl. +, C.B. +		Pregnancy, normal, primipara, sixth month.
77	1.0 -	Pl.h. + + +, Pl.s. +, Lg. -		Pregnancy, normal, primipara, seventh month.
78	1.0 -	Lg.M. +, Lg.s. -		Pregnancy, normal, primipara, seventh month.
79	1.0 -	Pl.h. + + +, Pl.s. +, Lg. -, Lg.M. +, Lg.s. -		Pemphigus.
80	1.0 -	Pl.h. + + +, Pl.s. +, Lg. -, Lg.M. +, Lg.s. -		Tubal pregnancy.
81	1.0 -	Pl.h. + + +, Pl.s. +, Lg. -, Lg.M. +, Lg.s. -		Pregnancy, normal, eighth month, primipara.

* Primary carcinoma stomach.

Table showing Results of Clinical Investigation.—(Continued.)

No.	Amount of serum used.	Dialysis process.	Optical method.	Diagnosis.
82	1.0 —	Pl. —, Ts. —, Ts.s. (+), Ov.s. (+), Br. —	A ₂ — ('01)	Melancholia, female.
83	(1.0) —	Pl. —, Ts. —, Ov.s. (+), Br. —		Dementia præcox, female.
84	1.0 —	Pl. —, Ts. —, Ts.s. (+), Ov.s. —, Br. —		Dementia præcox, male.
85	1.0 —	Pl. +, C.B. +	A ₂ — ('03), S ? ('04)	Carcinoma of breast.
86	1.0 —	Pl. —, C.B. —, Pl.s. —	A ₂ ? ('04), S ? ('04)	Rheumatism, no pain; no temperature at the time of blood-taking.
87	(1.0) —	Pl. (+), M. (+), Ty P. (+), Ov. + (+), Ov.s. (+) +		Graves's disease.
88	1.0 —	Pl.h. (+), Pl.s. (+), Tm. (+), Ty.P. (+), Ts. (+)		Sprained semilunar cartilage, male.
89	(1.0) —	Pl.h. —, Pl.s. —, Tm. —, Ty P. —, Ts. —, Ov.h. —, Ov.s. —		Graves's disease.
90	1.0 —	Pl. —, C.B. —, C.Lv. —	B — ('03), Li — ('03)	Pregnancy, eighth month, primipara, normal.
91	1.0 —	Pl. —, C.B. (+), C.Lv. —	A ₂ — ('02), Li — ('02)	Pregnancy, ninth month, primipara, normal.
92	1.0 —	Pl. (+), C.B. —, C.Lv. —	A ₂ — ('02), Li + ('05)	Injury to knee, male, aged 15.
93	1.0 —	Pl. (+), C.B. —, C.S. +	A ₁ — ('03), A ₂ — ('03) C — ('03)	Pregnancy, ninth month, primipara, normal.
94	1.0 —	Pl. —, C.B. —, C.S. +	A ₁ — ('03), A ₂ ? ('04) L — ('03)	Pregnancy, ninth month.
95	1.0 —	Pl. (+), C.B. —, C.S. —	A + ('05)	Gastric ulcer, male, aged 40.
96	1.0 —	Pl. +, C.S. —	A ? ('04)	Dilated stomach, male, aged 39.
97	(1.0) —	Pl. —		Normal, male, aged 54.
98	(1.0) —	Pl. +	A + ('06), B + ('06), L + ('05), Si — ('02)	Parturition, tenth day.
99	1.0 —	Pl. (+), C.B. (+), Pl.s. +, K. —	A ₁ ? ('04), Li + ('05)	Pregnancy, seventh month, primipara, normal.
100	1.0 —	Pl. (+)	A ₁ — ('02)	Pregnancy, eighth month, primipara, normal.
101	1.0 —	Pl. —, C.B. +, Pl.s. (+), K. —	A ₁ — ('03), Li + ('05)	Normal, female, aged 30.
102	(1.0) —	Pl. +	A ₁ — ('03), W — ('01)	Fractured femur, male, aged 50.
103	1.0 —	Pl. (+)	A ₁ ? ('04)	Pregnancy, fifth month, primipara, normal.
104	1.0 —	Pl. (+)	A' + ('05)	Pregnancy, seventh month, primipara, normal.
105			A ₁ + ('05), W + ('05)	Pregnancy, normal, eighth month, primipara.
106	1.0 —	Pl. —, C.B. (+), C.S. +, Lg. + +		Osteoarthropathic, cause?
107	1.0 —	Pl. (+), C.B. —, C.S. —, Lg. (+)	C — ('02), S — ('03)	Normal.
108	1.0 —	Pl. (+), C.B. +, C.S. —, Lg. + +		? Carcinoma of stomach.
109	1.0 —	Pl. + +, C.B. (+), C.S. +, Lg. + + +		Pregnancy, in labour, normal, primipara.
110			B — ('02)	Pregnancy, seventh month.
111	1.0 —	Pl. +		Pregnancy, eighth month.
112	1.0 —	Pl. +		Lead poisoning. Abortion 2½ weeks before examination.
113			B + ('05)	Pregnancy, seventh month, normal. Serum kept in ice-chest for 24 hours before examination.
114	1.0 —	Pl. +	B + ('07)	Pregnancy, seventh month, normal. Serum kept in ice-chest for 14 days before examination.
115	1.0 —	Pl. +, C.B. —, S. +		Sarcoma of breast.
116	1.0 —	Pl. +, C.B. —, S. +		Puerpera, tenth day, sapremia.
117	1.0 —	Pl. (+), C.B. —, S. (+)		Hæmorrhoids, female. Last menstruation 2 weeks ago.
118	1.0 —	Pl. +, C.B. (+), M. (+)	B — ('03)	Vomiting. Acidosis? Pregnancy. Last menstruation 5 weeks ago.
119	(1.0) —	Pl. (+)	A ₁ + ('06), W — ('03)	Pregnancy, seventh month, primipara. Serum kept in ice-chest 2 days before examination.
120	1.0 —	Pl. +, C.B. +, M. +		Carcinoma cervicis. Serum kept in ice-chest till next day.
121	(1.0) —	Pl. (+)	A ₁ + ('06), W + ('06)	Chronic rheumatism, aortic regurgitation, wasting. Temperature normal 5 weeks.

Pl. = Placenta; Pl.h., human placenta; Pl.s., sheep's placenta. B.E. = Formed elements of blood. C.B. = Carcinoma of breast; C.Lv., carcinoma of liver; C.S., carcinoma of sigmoid flexure. S. = Sarcoma. S.M. = Sarcoma of mediastinum. Lg. = Lung; Lg.M., lung miliary tuberculosis; Lg.s., sheep's lung. Br. = Brain. Lv. = Liver. St. = Emulsion of staphylococcus albus. M. = Muscle; M.h., human muscle; M.s., sheep's muscle. Ts. = Testicle; Ts.s., sheep's testicle. Ov. = Ovary; Ov.s., sheep's ovary. Ty. = Thyroid; Ty.P., thyroid parenchymatous. Tm. = Thymus. K. = Kidney.

continuously working at the improvement of his new methods of research.

At present, according to our experience, the less control one uses in examining cases the better results one is likely to get. If anyone were to examine 100 cases of pregnancy and as many cases of robust healthy adults with placenta albumin only, the probability is that by proper working he would get an expected result in nearly every case examined and declare that Abderhalden's test is a specific test for pregnancy. Let him now use other well-prepared substrates, say a carcinoma albumin; he will come to the conclusion that the Abderhalden test is not a specific one, but that the serum of a pregnant patient occasionally gives a positive reaction with carcinoma albumin. If he will use besides a few other substrates—e.g., human and sheep's testicles and human muscle—he will find himself still more dubious as to the specificity of the proteolytic ferments in blood serum. He will lose all faith in it as things stand now if, instead of taking healthy people as controls, he examines

patients' serum collected at random in medical and surgical wards.

If someone will compare the conclusions that I have come to at the end of a year's experience with Abderhalden's methods of investigation, with my article on the subject in the *London Hospital Gazette*,³ independently of my own experimental work, he may be surprised at the optimistic tone of the latter. But there is nothing surprising in it. There is a distinct difference between theory and practice. Ehrlich's chain theory preceded the complement-deviation test. And I am still, as ever, full of admiration for Abderhalden's theoretical views on the action of ferments in the animal organism, and firmly believe that in time one will be able to demonstrate specific ferments in the blood serum.⁴

Cambridge-terrace, Regent's Park.

³ London Hospital Gazette, xx., 8, 1914.

⁴ For a complete bibliography see fourth edition of Abderhalden's "Abwehrfermente." Verlag von Julius Springer, Berlin.

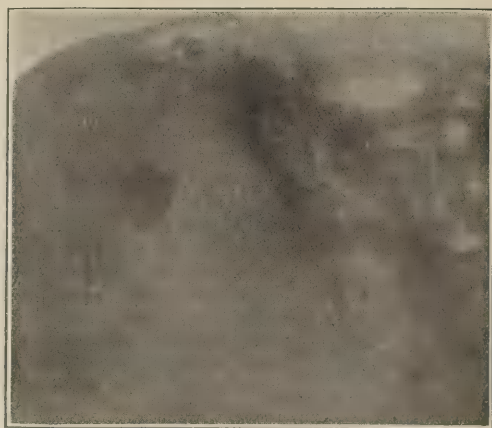
A CASE OF X RAY DIAGNOSIS OF A CHRONIC CEREBRAL ABSCESS SECONDARY TO FRONTAL SINUS SUPPURATION.

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THE patient, a private on the Reserve list of the 2nd Battalion Royal Warwickshire Regiment, was sent to the Ear and Throat Hospital by Mr. Beatson Hird on account of the persistence of discharge from a fistulous opening in the right frontal region, in the lower part of a depressed scar above the inner end of the right eyebrow. The history was as follows. In April, 1913, the patient attended the eye department at the General Hospital with symptoms of acute inflammation in the right frontal sinus. He complained of pain, and in the upper part of the right orbit there was an inflammatory swelling, which was incised by Mr. Hird. Carious bone was detected in the orbital roof, and through a necrotic area a probe could be passed into the right frontal sinus. The patient was sent to the surgical side, where a radical operation was performed on the right frontal sinus, the particulars of which have been supplied by Mr. H. H. Sampson, resident surgical officer. The right frontal sinus was a shallow one. Its entire anterior wall was removed, and also the mucous lining of the sinus, in a state of polypoid degeneration, showing that the cavity had been the seat of chronic disease with a recent acute exacerbation. There was no sign of caries on the posterior wall. An opening was found through the median partition into the left frontal sinus. Drainage into the nose was attempted on the right side, and the edges of the wound were kept apart, but in spite of this the discharge continued externally from the lower part of the wound.



Reproduction of skiagram showing site of abscess injected with bismuth paste.

At a subsequent operation an area of carious and necrotic bone was found in the centre of the posterior wall of the sinus, and by its removal the dura was exposed. Purulent discharge still continued from the wound.

In September, 1914, the patient was admitted to the Ear and Throat Hospital for further treatment. No evidence of disease was observed within the nasal cavities. After determining the upward and

inward direction of the fistula it was decided to make use of Beck's bismuth paste to demonstrate, if possible, the source of the discharge. For this purpose a small amount of it was injected in a warm fluid state through the fistula and was retained for the most part. Radiograms then were made on two occasions in postero-anterior and lateral directions, and with some surprise it was seen that the bismuth had collected in the right frontal lobe of the cerebrum. (See illustration.) Under an anæsthetic a flap was raised along the lines of the former incision to expose the right frontal bone, where an opening was found about the size of a shilling exposing the dura. The bone edges were smooth and the surrounding bone was healthy in appearance. The fistulous track from the lower part of the skin incision led to an opening in the dura surrounded by granulations at the upper edge of the hiatus in the bone, and sinus forceps inserted through it allowed about a drachm of pus to escape. Resistance to the passage of the forceps was felt at a distance of 2 inches from the surface. After removing bone around the fistula a strip of gauze was inserted into the abscess cavity. Through an opening in the median partition between the frontal sinuses several small polypi were removed from the left sinus, and the passage into the nose made wider on that side. The right infundibulum had become obliterated. The external wound was left open and the discharge of pus continued for four weeks, but ceased when the gauze drain finally was removed and after an application of silver nitrate had been made to the granulations around the opening in the dura. The wound now is closed, and the patient remains in good health.

It is interesting to note that the patient's general state gave no indication of the presence of a cerebral abscess, owing, no doubt, to the absence of pressure from retention of the contents. The fistula allowed discharge to overflow, but the drainage had been insufficient to permit closure of the abscess cavity until the operation remedied the condition. The case illustrates the use of bismuth combined with an X ray examination in localising the site of the abscess before operation, and its value as an aid to diagnosis of an otherwise obscure source of a purulent discharge.

Birmingham.

A NOTE ON SOME CASES OF GUNSHOT FRACTURE.

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SINCE shortly after the beginning of the present war beds both at the Hampstead and the Orthopædic Hospitals have been occupied by wounded soldiers. Among the many cases of wounds of various kinds a considerable number have involved fracture of one or more bones. In studying the fractures we have had valuable help from the radiographers, Dr. Stanley Melville at the Orthopædic Hospital and Mr. Cyril Thatcher at Hampstead. It seems worth while to put on record a few of the more typical cases.

CASE 1. *Fracture of the ulna by rifle bullet* (Fig. 1).—As shown in the radiogram the fracture is typical of the damage done to a bone when it is struck vertically by a modern conical bullet travelling at a high velocity; there is a central space, and around it many fragments displaced

outwards from the path of the bullet. The wounds both of entry and of exit were small and had healed when the patient was received at Hampstead from the Royal Herbert Hospital, Woolwich. The patient had absolute ulnar paralysis below the level of the injury.

In the course of five weeks the fracture became solidly united, and I then operated on the ulnar nerve, three-

FIG. 1.



A typical rifle-bullet fracture of the shaft of the ulna.

quarters of an inch of which had been destroyed by the bullet. The shortening of the nerve made it necessary to displace its upper part to the front of the internal condyle before the freshened ends could be comfortably brought together and stitched with catgut. Sensation began to return a fortnight later.

CASE 2. Fracture of the ulna with comminution both of the bone and of the bullet.—In this case there was only one external wound, and it was healed when the patient came into hospital. The missile was probably a leaden shrapnel bullet, which is broken into fragments, as shown in Fig. 2. Union was slow, but with the aid of regular massage mobility and crepitus, both pronounced at first, gradually diminished, and when the patient was discharged to convalesce the continuity of the bone was all but restored.

CASE 3. Fracture of the shaft of the humerus by a shrapnel bullet.—The patient, a dragoon, was wounded in the retreat from Mons, and remained in the saddle for some hours after being struck. The wound where the bullet entered over the outer and lower part of the deltoid had healed when the patient came into hospital a fortnight after it was received. The radiogram showed some traces of metal separated from the bullet in its passage through the bone. Union was complete in five weeks, and then I operated to remove the bullet, which gave the patient some inconvenience. It lay in the substance of the serratus, and on examination proved to be a leaden sphere about half an inch in diameter. Under massage and exercises the range of movement was restored to the normal, and the muscular power improved.

CASE 4. Fracture of the shaft of the femur by rifle bullet, which could be felt under the skin on the outer aspect of the limb as is shown in the radiogram (Fig. 3).—The wound of entry had healed when the patient, a Belgian, came into the hospital. The position of the fragments was even worse than appears in the radiogram, and after four weeks there was no sign of uniting. The patient is a somewhat delicate man, and like many others of the wounded or sick soldiers suffered from pyorrhoea. The latter having been energetically treated for a week previously, I dealt with the fracture by open operation. The bullet lay in a cavity only slightly larger than itself and lined by granulations blackened by the stain of the metal, the nickel coat of the bullet being intact. The fractured surfaces of bone were freely exposed through an antero-external incision. The fragments were separated by a portion of the crureus muscle; they were freshened, and a little callus was removed.

The patient's condition made any long operation unwise, so an encircling loop of stout silver wire was used to hold

FIG. 2.



A shrapnel-bullet fracture of the shaft of the ulna.

the fragments together, the loop being itself kept from slipping by a short screw inserted into one fragment. The limb was put up on a long splint and a 12 lb. extension applied. The position was good, there being about half an inch of shortening. In this case, owing to the fragments being separated by muscle, there was no chance of union apart from open operation, but it was with reluctance that I had resort to operation, because I had previous experience of

failure of union of fractures in subjects of pyorrhoea after open operation and in spite of aseptic healing of the operated parts. Five weeks after operation there was an abundant callus, and the limb was put up in plaster-of-Paris bandages to enable the patient to get about on crutches.

CASE 5. *Fracture by rifle bullet of the right radius* (Figs. 4 and 5).—The wound of entry was on the outer aspect of the forearm; that of exit on the front; the latter was as large as a five-shilling piece, and from both free suppuration was taking place.

I explored the parts and found that the loose fragments shown in the radiogram were imbedded in the wall of a cavity of the size of a pigeon's egg beneath the flexor muscles. Having removed these fragments and provided for free drainage, I dealt with the broken bone in a way that in spite of theoretical objections has proved successful in my hands. The fragments were drilled and a wire passed through the holes and brought out at the wound and there twisted. Figs. 4 and 5 show the improved position thus obtained. When union has taken place the wire is removed in septic cases, whilst in aseptic conditions, the wire being firmly incorporated in the bone, the ends of the wire are merely cut off flush with the bone. Used in this way the wire secures a good position of the fragments, lessens pain, and acts as a drain. More elaborate modes of fixation are to be avoided in such cases. Five weeks after the operation, all suppuration having ceased and union of the fragments being firm, the wire was removed, and the patient will be little, if any, the worse for his wound.

CASE 6. *Transverse fracture through the left humerus just above the epicondyles*—The patient, a sturdy infantryman, was admitted with a stiff elbow, painful and almost of double its normal width. Both wounds were healed. There was partial ulnar paralysis. A radiogram showed several fragments below the line of passage of the bullet, and some of them had been displaced laterally. I opened the joint through an incision curved upwards, and this having been reflected to expose the olecranon, the latter was cut through at its base, revealing six separate fragments. These I removed; then, having shaped the lower surface of

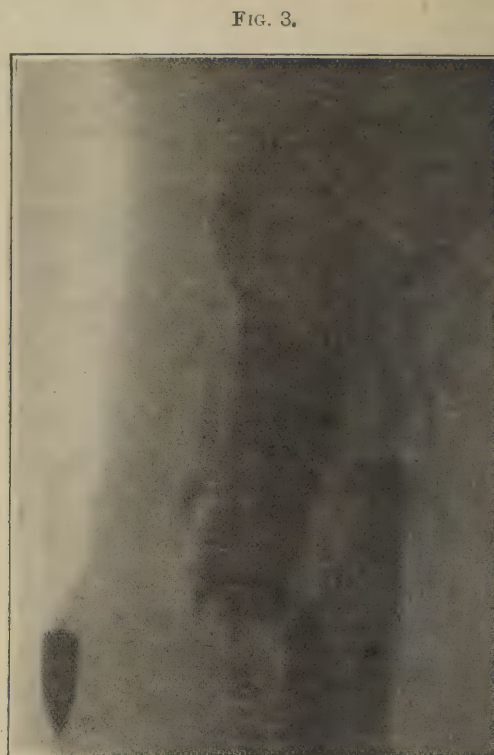


FIG. 3.
A rifle-bullet fracture of the shaft of the femur; the bullet is seen lying close to the surface of the limb.

the upper fragment and re-attached the olecranon by a wire, the wound was closed and the limb put up on an angular splint. The patient has now a useful elbow with about 90 degrees of movement. The ulnar paresis has disappeared.

CASE 7. *Fracture of the upper end of the tibia into the knee-joint*.—The patient had been struck on the front of the knee by the brass cap of a shell. There was no external wound. The joint was distended with fluid and there was deformity of the limb, which was in the state of genu valgum.

The joint was opened by a transverse cut, the knee-cap being divided across. A teacupful of clot and serum having been removed, it was seen that the inner tuberosity was broken off and the fragment displaced downwards; the posterior crucial ligament was torn through at its femoral attachment. The fragment of bone was forced into place without much difficulty, and the patella having been drilled and wired in two places and the synovial membrane and capsule stitched, the wound was closed. Three weeks later passive lateral movements of the patella were smooth, and the patient will probably have a useful and movable knee-joint.

In conclusion I should like to acknowledge the great assistance I have received in the above and many kindred cases from Dr. G. A. H. Barton, anaesthetist, and from Mr. J. B. Truter, house surgeon at Hampstead, and Mr. Renfrew White, house surgeon at the Orthopaedic Hospital.

Portland-place, W



FIG. 4.
A rifle-bullet fracture of the radius.

FIG. 5.
The same as Fig. 4 after temporary wiring; the author's method of treating compound fractures of long bones.

PELLAGRA IN ANTIGUA.

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THIRTY-TWO cases of pellagra have come under my notice here during 1913, 14 at the lunatic asylum and 18 at the hospital. Five of these in the lunatic asylum came from Dominica, 5 from St. Kitts, 1 from the Virgin Islands, and the remainder of the cases, 21 in number, have all originated in Antigua. There have been 10 deaths from pellagra in the lunatic asylum during the year and 1 death in the hospital. Pellagra was first reported in Antigua in 1909, and since then an increased number of cases have been recorded every year. It is impossible to say how long the disease may have existed here, as it is a disease that has only of recent years attracted universal attention, and was not therefore looked for or diagnosed here. A disease known locally as "rum burn" has long been prevalent here; these cases were most probably cases of pellagra in alcoholic subjects.

Pellagra, however, is undoubtedly endemic in Antigua. This fact is of vital importance to students of the disease in its bearing on (1) the opinion of the Italian medical schools and other investigators, that pellagra is a food disease caused by the ingestion of bad maize; and (2) the opinion of Sambon and certain American investigators that pellagra is an insect-borne disease. The bearing of this fact on the study of the disease can best be seen by comparing the theories advanced by the exponents of the two great rival theories. We can then see to what extent local conditions conform to either of these theories. For this purpose I submit the tables of comparison herewith attached.

TABLE I.—Theories of the exponents of the parasitic theory as opposed to the maize theory.

A. Sambon's reasons (1910) for believing that it is carried by an insect, most probably by the simulium fly.

1. The topographical distribution of pellagra does not coincide with that of maize consumption.
2. The disease occurs frequently in persons who have seldom or never partaken of maize as an article of food.
3. Preventive measures based on the maize theory have failed.
4. There is no foundation for the belief that pellagra broke out in Europe soon after the introduction of maize from America.
5. It is not directly contagious.
6. It presents a seasonal incidence—viz., spring and autumn.
7. Simulium in its imago stage appears to affect the same seasonal incidence.
8. Simulium, so far as is known, affects the same topographical conditions as pellagra.
9. It is practically restricted to only one class of people—viz., the agricultural labourer—owing to greater exposure to infection.
10. Simulium has a wide geographical distribution which appears to correspond with that of pellagra.
11. Pellagra stations are closely associated with streams of running water.
12. That this theory of its being conveyed by simulium explains most admirably the limitation of the disease to agricultural labourers, a limitation which nothing else can explain in a satisfactory manner.

B. Thompson McFadden Pellagra Commission, 1913.

1. The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study.
2. No specific cause of pellagra has been recognised.

3. We are inclined to regard intimate association in the household and the contamination of food with the secretions of pellagrins as possible modes of distribution of the disease.

4. We have discovered no evidence incriminating flies of the genus *simulium* except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect stomoxys calcitrans would appear to be the most probable carrier.

5. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown.

TABLE II.—Theories of the exponents of the maize and bad food theories.

A. Italian theories as summarised by Lavinder, 1909.

1. Pellagra is found as an epidemic disease only in those countries where maize is extensively used as an article of food by the poorer classes, although there are vast tracts where maize has been grown and used as a food for many years and yet no pellagra has appeared.

2. Countries in which maize is not grown or used for food, even though contiguous to pellagrous sections, are free of pellagra (see Lombroso, Procopin, Babes, Sion, and others).

3. A change of food among individuals or groups of individuals brings constantly a diminution or disappearance of pellagra.

4. History and observation show clearly that the first appearance of pellagra in Europe followed more or less closely the introduction of maize into Europe.

B. Dudgeon on pellagra in Egypt, 1910.

1. Pellagra is undoubtedly confined to people whose staple diet is maize. It is very uncommon among the rich agricultural class, though it does occur.

TABLE III.—Facts from a report on 1426 cases of pellagra in Kentucky, Georgia, and South Carolina, 1913, by Robert Grimm, Surgeon in the United States Public Service.

1. Percentage of cases among whites, 85.7; among the coloured population, 14.3.

2. Of 323 of these cases personally seen and investigated each one gave a history of more or less regular use of corn as a diet.

3. Most cases had been subsisting almost entirely on food bought at the stores—viz., canned, salted, preserved foods.

4. Most cases were found among renters and croppers who live under conditions of poverty and bad hygiene.

5. Six cases of the 323 personally seen occurred in persons in comfortable circumstances.

The facts of the existence of pellagra here which have special bearing on these theories are:

1. Antigua was visited in 1913 by Dr. Sambon, of London, and by Mr. Jennings, of the American Bureau of Entomology, in the course of their investigations of pellagra. Neither of them was able to find any *simulium* in Antigua. 2. There is very little running water to be found in Antigua, and none of the cases reported have any connexion whatever with running water. 3. No cases have been reported among the white population: all the cases occurred among the blacks, who generally live in conditions of poverty and bad hygiene. 4. All the cases have occurred among the class whose principal diet is cornmeal and salt fish. 5. Cornmeal is also largely partaken of by the white population, among whom no cases of pellagra have occurred; but in their case the cornmeal is taken in conjunction with an otherwise generous and varied diet.

The first and second of these facts have a distinctly adverse bearing on the simulium hypothesis. (Compare Table I. A, 7, 8, 10, 11.) The third of these facts may be considered first, as bearing on the stomoxys calcitrans theory. (Table I. B, 4.) This insect is found here, and is most frequently discovered in the neighbourhood of out-buildings and

stables which are the places frequented by the blacks and not frequented by the whites. (Compare also Table I. A, 9, 12.) This fact is also of very great importance, in view of the fact that Grimm, in investigating 1426 cases of pellagra among whites and blacks both living under bad economic conditions, found that 85·7 per cent. of the cases occurred among whites, and this in a community in which he states the negroes equal or probably outnumber the whites. He further states that in several districts he was told by physicians that they had met with several cases of pellagra among whites, but had never seen a case among the blacks. His facts justify him therefore in drawing the conclusion that among blacks and whites living under the same conditions whites are more susceptible to the disease.

In the light of this fact it is all the more remarkable that all the cases in Antigua occur among the blacks and none among the whites. This might be accounted for by the fact that blacks are more exposed to being bitten by the stomoxys, or equally by the fact that the whites live under far better economic conditions than the blacks. This fact is also of importance as bearing on the food theory, and in this connexion it must be considered in conjunction with facts 4 and 5. Fact 4 taken by itself would appear to bear out the maize theory, and is in accord with Lavinder's statement (Table II. A, 1) and with Dudgeon's experience in Egypt (Table II. B, 1). Taken in conjunction, however, with fact 5, its importance as a factor in favour of the maize theory is greatly minimised, and when we consider that pellagra is found among the blacks who live on cornmeal + a generally inadequate and improper diet, and pellagra is not found among the whites in Antigua who are really more susceptible to it, and eat cornmeal + an adequate and varied diet, it will be seen that the facts of its occurrence here, while not incompatible with the theory that it is conveyed by the stomoxys calcitrans, are most in accord with the theory that the causative agent in pellagra is not so much the ingestion of spoiled maize as the deficiency of some essential item of diet; in a word, that it is caused not by bad food but by deficient food. This theory is in accord with many of the arguments stated in all three tables—Tables I. A, 1, 2, 3, 4, 5, 9, 12; B, 7; Table II. A, 1, 3; B, 1; Table III., 2, 3, 4. With regard to the infective nature of pellagra, I have not been able to trace any connexion between any of the cases which have come under my observation.

Antigua.

LIVINGSTONE COLLEGE.—“Livingstone College Year Book,” which usually makes its appearance in the summer, has this year been published in the present month, and contains a report of the work of the session 1913-14. This is the last report of the work of the College under the principalship of Dr. C. F. Harford, who has now given place to Dr. Loftus E. Wigram, and the extracts received from old students of the College afford testimony of the need for such an institution and of the affection in which the late Principal and his wife are held by those who have passed through the College, these numbering 548 in 21 years, the period of the existence of the College. The teaching is intended to help missionaries to take care of their own health and to give them sufficient medical knowledge to deal with simple cases when qualified medical aid is not at hand. The “Livingstone College Year Book, 1915,” has a very good reproduction of a photograph of Dr. Harford as a frontispiece, and can be obtained from the College, Leyton, E., price 6d.

THE EFFECT OF CALCIUM CHLORIDE ON HÆMOLYSIS OCCURRING “IN VIVO.”

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AND

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(From the Bacteriological Department of Charing Cross Hospital.)

It has long been known that certain metallic salts, and especially the salts of the metals of the alkaline earth series, exert *in vitro* an inhibitory action on the lysis of red blood corpuscles by normal and immune hæmolytic sera. This phenomenon was first demonstrated by Nolf,¹ and the subsequent observations of Markl,² Ehrlich and Sachs,³ Vincent and Dopfer,⁴ Sutherland and McKay,⁵ and others have all tended to confirm his results. The inquiry was taken a step further by Markl,² who showed that in the case of the acid phosphate of sodium and certain other salts the absence of hæmolysis resulted from the failure of the complement to combine with the red-cell-antibody complex. These results were confirmed by Ehrlich and Sachs,³ though these authors do not accept the whole of Markl's explanation.

As a result of the antihæmolytic action which they display in test-tube experiments, the salts of calcium have been put forward as valuable therapeutic agents in cases in which hæmolysis is an important factor, notably in blackwater fever. The treatment of this condition by calcium chloride has been urged especially by Vincent⁶ and by Sutherland and McKay.⁷ The former asserts that, in addition to its inhibitory action against various hæmolytic sera, this salt is also antihæmolytic in the presence of the salts of quinine, to which has been ascribed by some a leading rôle in the production of hæmoglobinuric fever in malarial patients. MacGilchrist,⁸ however, has been unable to confirm these results.

Since the assumption of the therapeutic value of the salts of calcium in conditions which involve hæmolysis is based almost entirely on test-tube experiments, and since we have plentiful examples of the difficulties which arise in applying *in vitro* findings to the solution of problems which involve similar processes occurring in the living subject, it would seem to be of interest to determine whether the antihæmolytic action of calcium chloride is as potent in the animal body as it is in the test-tube. An opinion on this point possessing a considerable degree of probability may be formed from a consideration of the way in which this salt acts. If the result of its presence in a hæmolytic mixture is merely to prevent the fixation of complement by the red-cell-antibody complex, or to inhibit the action of the former without permanently affecting either the red cells or the hæmolytic antibody, then it would seem highly improbable that any useful therapeutic result could be obtained. For unless the concentration of the salt could be maintained at a sufficiently high level at the site of the hæmolytic process, and as long as the hæmolytic agent was in operation, the onset of hæmolysis would be only slightly delayed; since neither the animal's red cells nor the hæmolytic antibody would be in any way modified, and the

necessary supply of complement would be always present. We already know that many of the metallic salts act in exactly this manner, and a series of experiments were performed to determine whether the same fact held true for calcium chloride.

Experiment.—A series of tubes was put up containing in each case 0.5 c.c. of a 1/20 suspension of washed sheep corpuscles in normal saline, 0.5 c.c. of a 1/10 dilution of fresh guinea-pig serum, and 0.5 c.c. of a dilution of an inactivated hæmolytic serum (rabbit *v. sheep*) containing 4 minimal hæmolytic doses. To each tube was added a varying amount of a 10 per cent. solution of pure calcium chloride, and finally the contents of each tube were made up to the same total volume by the addition of the requisite amount of normal saline solution. The whole series was then incubated at 37° C. for one hour. At the end of this time the tubes were inspected, and those which showed no obvious hæmolysis were centrifuged and again examined.

The results were as follows:—

Amount of 10% calcium chloride added.	Hæmolysis.	Amount of 10% calcium chloride added.	Hæmolysis.
0.1 c.c.	Faint trace.	0.04 c.c.	Almost complete.
0.09 c.c.	Trace.	0.03 c.c.	Complete.
0.08 c.c.	Very marked.	0.02 c.c.	"
0.07 c.c.	"	0.01 c.c.	"
0.06 c.c.	"	0.00 c.c.	"
0.05 c.c.	Almost complete.		

The supernatant fluid was then pipetted off from the two tubes showing only a faint tinge of hæmolysis. To the deposited red cells were added in one case 1 c.c. of saline and 0.5 c.c. of the diluted guinea-pig serum, to the other 1.5 c.c. of saline. The tubes were well shaken and again incubated for 1 hour at 37° C. At the end of this time the tube to which complement had been added showed complete hæmolysis; the tube which had received only saline showed none. This experiment was repeated with varying dilutions of calcium chloride, always with the same result.

These results show that calcium chloride falls into line with other metallic salts, in so far as it has no action on either the red cells or the hæmolytic antibody, nor does it prevent the combination of these two elements in the concentrations here employed. For the reasons mentioned above, therefore, we should expect that its antihæmolytic action would be less in evidence *in vivo* than *in vitro*.

We next proceeded to put the question to experimental proof, employing in all cases rabbits as the subjects of experiment, and a hæmolytic serum which was obtained by the repeated intraperitoneal injection of washed rabbit corpuscles into guinea-pigs. The serum was inactivated by heating for 30 minutes at 55° C., and then stored on ice until used.

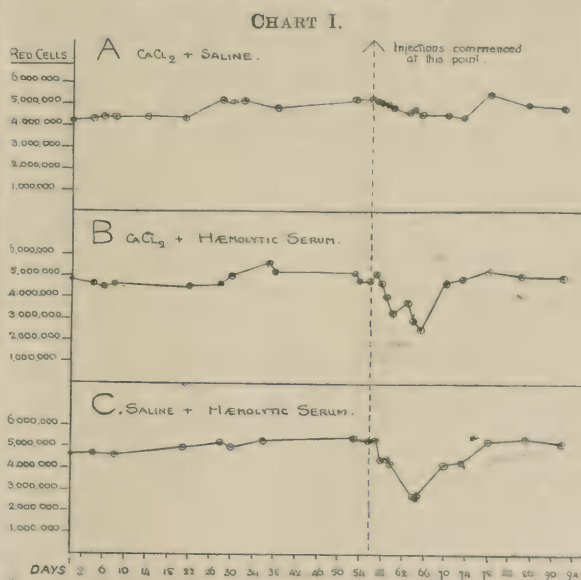
We would point out here that the experience obtained by a large number of consecutive red-cell counts, carried out on individual rabbits, has convinced us that the variations in the results obtained from day to day are much more considerable than in the case of a similar series of counts carried out in the human subject. The method employed was to take up 5 c.mm. of blood in a graduated pipette and transfer it to 995 c.mm. of normal saline containing 1 per cent. of sodium citrate and a trace of formalin. The count was made in an ordinary Thoma-Zeiss counting chamber. The blood was obtained by puncturing one of the smaller ear veins, and in each case two exactly similar dilutions were prepared and counts made from each, the results being averaged. Even when these precautions were taken considerable differences between daily counts were observed, and for this reason every animal employed

was kept for some weeks under constant conditions, and then several successive counts were made, so that a reliable standard could be obtained for observing subsequent variations. The injections were, in almost all cases, given into the marginal vein of the same ear which had been punctured in making the previous counts. The other ear was employed in the subsequent observations. Blood was collected for counting from each rabbit immediately before making the inoculation.

Experiment.—Three rabbits, "A," "B," and "C," were taken. To "A" was administered a series of intravenous injections of a 10 per cent. solution of calcium chloride, followed after an interval of ten minutes by the intravenous injection of a certain amount of normal saline. "B" was treated in the same way, except that the normal saline was replaced by an equal quantity of the hæmolytic serum. In the case of "C," saline was substituted for the calcium chloride solution, the hæmolytic serum being injected as in the case of "B." The actual injections were carried out as follows:—

Day of experiment.	"A"		"B"		"C"	
	10% calcium chloride.	Normal saline.	10% calcium chloride.	Hæmolytic serum.	Normal saline.	Hæmolytic serum.
1st	1 c.c.	0.2 c.c.	1 c.c.	0.2 c.c.	1 c.c.	0.2 c.c.
2nd	"	0.5 c.c.	"	0.5 c.c.	"	0.5 c.c.
3rd	"	"	"	"	"	"
4th	"	"	"	"	"	"
5th	"	"	"	"	"	"
6th	"	"	"	"	"	"
8th	"	"	"	"	"	"

The results are clearly shown in Chart I.



From this experiment we see that a relatively large dose of calcium chloride administered intravenously does not serve to inhibit the action of a hæmolytic serum injected by the same route ten minutes later. Evidence confirmatory of these results was obtained in two further series of experiments. In the first series a preliminary *in vitro* experiment was made and the exact quantity of calcium chloride necessary completely to inhibit hæmolysis by 0.1 c.c. of the immune guinea-pig serum in the presence of a relatively large excess of complement (fresh rabbit serum) was determined.

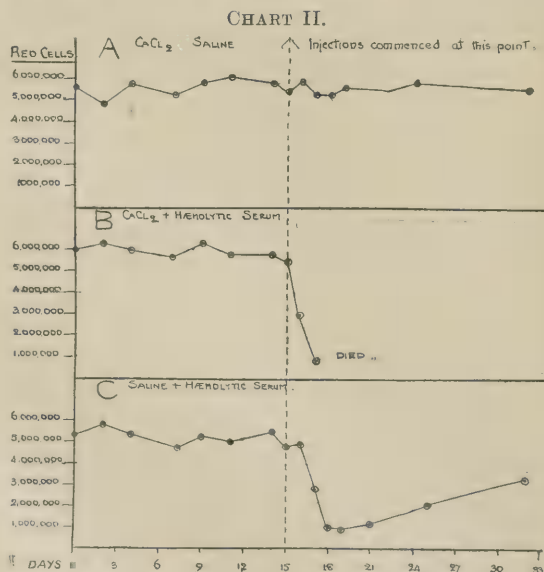
Experiment.—Each tube contained 0.5 c.c. of a 5 per cent. suspension of washed rabbit corpuscles in normal saline, and 0.1 c.c. of the inactivated hæmolytic serum (guinea-pig *v.* rabbit). A 10 per cent. solution of calcium chloride in distilled water was then added in the amount indicated in the table, and sufficient saline was added to equalise the total volume in each tube. Finally, 0.5 c.c. of fresh undiluted rabbit serum was added to each tube to serve as complement. Incubation was carried out for one hour at 37° C. with the following results:—

Amount of 10% calcium chloride added.	Hæmolytic in 1 hour at 37° C.	Amount of 10% calcium chloride added.	Hæmolytic in 1 hour at 37° C.
0 c.c.	Complete.	0.15 c.c.	Slight.
0.025 "	"	0.2 "	None.
0.05 "	"	0.25 "	"
0.075 "	"	0.5 "	"
0.1 "	Almost complete.	0.75 "	"
		1 "	"

Thus, 0.02 gram. of calcium chloride served completely to inhibit the hæmolytic caused by 0.1 c.c. of this immune serum acting on rabbits' red cells in the presence of a relative excess of rabbits' complement.

Now it is clear that the ratio between the amount of the calcium chloride and the amount of hæmolytic serum is the only one which we can keep constant in passing from *in vitro* to *in vivo* conditions, since the total bulk of red cells in the animal's body and the total available complement at any given time are beyond our control. We know indeed from the study of Muir and McNee⁸ that a serum hæmolytic for rabbits' red cells produces, when injected into this animal, a degree of blood destruction incomparably greater than one would be led to expect from a measurement of its activity in the test tube. A mixture was prepared containing hæmolytic serum and calcium chloride in such proportions that no hæmolytic would occur *in vitro*, and this mixture was administered intravenously.

Experiment.—Three rabbits, "A," "B," and "C," were taken. "A" received 2 c.c. of normal saline and 1 c.c. of a 40 per cent. solution of calcium chloride. "B" received

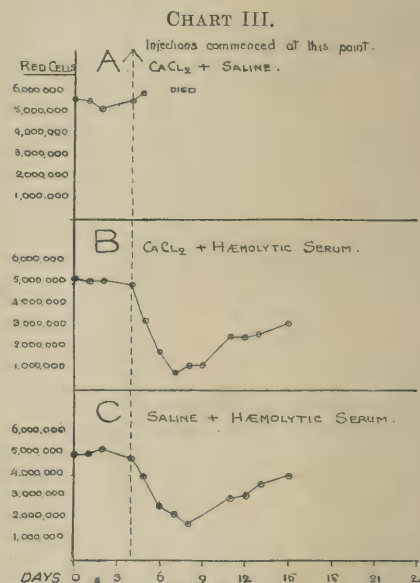


2 c.c. of hæmolytic serum and 1 c.c. of 40 per cent. calcium chloride solution. "C" received 2 c.c. of the same serum and 1 c.c. of normal saline. All injections were given intravenously, and the two constituents were mixed in the syringe immediately before inoculation in each case. Chart II. shows clearly the course of events. As before, counts taken before as well as after the inoculations are included, and the vertical line shows the point at which these were given.

This experiment demonstrates conclusively that a mixture of hæmolytic serum and calcium chloride which produces no lysis in the test tube is actively lytic when introduced into the general circulation. Indeed, any difference which is present between the two animals which received the serum is in favour of that one which did not receive the calcium salt. Too much stress should not be laid on the death of rabbit "B" in this experiment, since rabbit "C" also became acutely ill and at one time appeared moribund. The control animal showed some symptoms of distress immediately after receiving the calcium chloride injection, but quickly recovered and remained in apparently normal health.

A final series of experiments was made in which the initial steps were identical with the above, but the animal which received serum and calcium chloride and that which received saline and calcium chloride were each given further daily injections of the same amount of calcium chloride solution, while the rabbit which was originally given serum and saline received further daily injections of the same amount of saline solution.

Experiment.—Three rabbits, "A," "B," and "C," were taken. "A" received a mixture of 2 c.c. saline and 1 c.c. 40 per cent. calcium chloride solution, and thereafter a daily injection of 1 c.c. 40 per cent. calcium chloride until death. "B" received a mixture of 2 c.c. of hæmolytic serum and 1 c.c. of 40 per cent. calcium chloride solution, and thereafter a daily injection of 1 c.c. 40 per cent. calcium chloride solution until the termination of experiment, except on the



sixth day after the first injection, when no calcium chloride was given. "C" received a mixture of 2 c.c. of the same hæmolytic serum and 1 c.c. of normal saline solution, and thereafter 1 c.c. of normal saline until the termination of the experiment, except on the sixth day after the first injection.

As before, all injections were given intravenously, except that the sixth and subsequent inoculations of calcium chloride solutions into rabbit "B" were given intramuscularly on account of the fact that a large cedematous swelling had formed in the neighbourhood of the marginal ear-vein used for the previous intravenous injections. A similar change in the site of injection was at the same time made in the case of rabbit "C" in order to keep the results comparable. The results are charted in the same way as for the preceding experiments. (See Chart III.)

The results obtained throughout were thus entirely concordant. No evidence whatever was obtained of any protective action exerted by

calcium chloride on red cells, which were subjected in the animal body to the action of a specific hæmolytin. Indeed, any differences in the parallel experiments were in the nature of excessive lysis in the cases of those animals which were treated with this salt.

It may be argued that the administration of the salt was too infrequent to admit of the steady maintenance of a sufficient concentration in the tissues and blood stream. This objection will not hold if we remember the relatively enormous doses of the drug employed, corresponding to about 16 grm. given intravenously to the human subject, a dose, moreover, which approached closely the lethal limit, as is shown by the death of a control animal immediately following the second injection in the last experiment, and by the fact that rabbit "B" in this series became greatly distressed after each injection of the salt. We know also from the work of Mendel and Benedict,⁹ Boggs,¹⁰ and others, that the excretion of calcium is comparatively slow, and we may hence be certain that in the last experiment the concentration of the salt in the tissues was maintained at a level beyond that which could be obtained in the therapeutic administration of the drug to man.

Conclusions.—The experiments here described afford no evidence of any protective influence being exerted by calcium chloride on the red cells of animals subjected to the action of a specific hæmolytic serum, though this salt serves to inhibit the lysis of the same cells by the same serum in test-tube experiments. Conclusions as to the therapeutic value of this and similar salts based on *in vitro* experiments must therefore be held to be invalid.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Cases and Specimens.—*Sarcoma of Cervix and of Broad Ligament.*—*Cancer of Cervix.*—*Hysterectomy for Ante-partum Hemorrhage.*

A MEETING of this section was held on Dec. 3rd, 1914, Dr. W. S. A. GRIFFITH, the President, being in the chair.

Mr. CLIFFORD WHITE showed (1) an Ovarian Tumour which had been infected with tubercle, and (2) a case of Interstitial Tuberculous Salpingitis, in which tubercle bacilli were found in a small intra-mural abscess.

Dr. H. MACNAUGHTON-JONES demonstrated a Myomatous Uterus containing large numbers of intra-mural and sub-mucous growths. The tumour was removed from a patient aged 47, and it weighed 1 lb. 1 oz. The nuclei varied in size from that of a small egg to a pea. There were three larger intra-uterine growths, two in the fundal cavity and a cervical polypus. Altogether, in this comparatively small sized tumour there were from 30 to 40 growths, subserous, in the cavity and in the wall. The uterine surface was studded over with them, and its wall was a mass of nuclei. It was noteworthy that the patient sought advice rather for other symptoms than pelvic ones. Only for the past year had she suffered from menorrhagia.

Dr. TREVOR B. DAVIES recorded two cases—(1) Sarcoma of the Cervix Uteri, and (2) Sarcoma of the Broad Ligament.

The first patient, a single woman aged 29, was under the care of Mr. T. G. Stevens. There had been vaginal bleeding for three weeks. The menstrual periods were quite regular every 28 days, lasting from four to seven days. Examination per vaginam revealed a soft, smooth, rounded, bleeding tumour growing from the anterior lip of the cervix and filling the upper part of the vagina. The uterine body was normal in size and position. A hysterectomy was performed, the vagina being divided well below the growth. The pathological report stated that the tumour was roughly spherical and covered by a smooth necrotic surface, and in the recent state it measured 2 inches in diameter. Microscopically the appearances were those of a spindle-celled sarcoma. The stroma was scanty and the blood-vessels had very thin walls. The second patient was aged 51, married, and had had two children; menopause $1\frac{1}{2}$ years ago. Complaint: Pain in the right side of the lower abdomen running through to the back. In March, 1910, Mr. D. Drew removed an inflamed appendix. Examination showed the appendix scar to be tender and the right kidney freely mobile. Per vaginam: To the right of the cervix lay a hard, fixed mass the size of a large walnut, which bulged down into the vaginal roof. The uterus was normal in size and position and quite separate from the mass. At operation a hard swelling was found between the layers of the right broad ligament. It was shelled out and the broad ligament closed. In less than three weeks another fixed mass was felt in the same position. The tumour was about the size of a Tangerine orange, with a small mass the size of a large cherry projecting from its upper part. The tumour was pale and fairly firm; its surface somewhat nodular. In section the surface was pale; there were no hæmorrhages and no vessels were seen. Microscopically, the growth was a typical spindle-celled sarcoma composed of large spindle-cells arranged in bundles without any fibrous stroma, but with numerous thin-walled blood-vessels.

Dr. C. HUBERT ROBERTS showed a specimen of Pyometra and Cancer of the Cervix removed from a patient, aged 62, who had had seven children and two abortions; menopause 17 years ago. History of severe hæmorrhage three months before admission, and gushes of putrid fluid accompanied by severe colicky pains. The cervix revealed no ulceration nor new growth; uterine body enlarged, soft, and mobile. During the hysterectomy the vagina ruptured and foul material escaped into the pelvis. The lower part of the abdominal wound became infected, but the patient subsequently did well. The specimen showed a tubular solid growth of the whole of the cervix, which extended from the portio vaginalis to the os internum, and was densely hard. The cavity of the uterus was distended with purulent debris. The growth was a squamous-celled epithelioma.

Dr. CUTHBERT LOCKYER showed a case of Double Ureter which simulated a parovarian cyst of the right broad ligament. The specimen was obtained from a patient aged 63, in whom Dr. Amand Routh had noticed an enlarged and tender right kidney for two years previously. Pyonephrosis had been suspected. There was coli bacilluria, for which many injections of autogenous vaccine had been given without improvement. A hard, tender, solid lump was to be felt in the left posterior quadrant of the pelvis. In March, 1914, the patient began to lose blood from the uterus. As the menopause occurred 20 years previously, this latter symptom raised the question of malignancy starting in the body of the uterus. At the operation the hard body to the left of the uterus proved to be an isolated calcareous myoma adherent to the rectum and to the back of the left broad ligament; its shape suggested that it originally had a pedunculated attachment to the uterus. Above this independent growth, but quite separate and distinct, lay a solid tumour of the ovary, which proved to be malignant. The uterus and tumours were removed. The right broad ligament contained a cystic swelling of the size of an orange, which proved to be a dilated ureter twisted upon itself. This hydro-ureter was removed; the corresponding kidney was left *in situ*. The contents of the ureter were found after operation to be two calculi (blocking the lower twisted portion) and foul stagnant urine. Six weeks later a perinephric abscess was opened, since when the kidney had given no trouble. The cause of the uterine hæmorrhage was two myomatous polypi and endometrial hyperplasia. The uterus was not malignant.

Dr. HERBERT SPENCER described a case of Extensive Cancer of the Cervix with Pyosalpinx, well seven years after Wertheim's hysterectomy. The patient was aged 28. She had been examined by an obstetric physician, who advised her to go into a cancer ward as no operation could be done. The cervix was occupied by a large ulcerated growth as big as a small apple, which distended the vagina. The uterus was fixed by thickening in the left broad ligament and the left sacro-uterine ligament; the thickening was not nodular. Operation was performed at University College Hospital on Feb. 16th, 1907. The cervical growth was first curetted and cauterised, and several protruding masses were cut off with scissors. A solution of formalin (10 per cent.) was then applied. The operation was rendered difficult owing to the presence of bilateral pus tubes, which were adherent to the pelvis and rectum. The separation of the left ureter was also difficult. No glands were removed. A small abdominal drain was used. Urine escaped by the abdominal drainage-tube for a few days, and afterwards by the vagina. The patient recovered and left for Canada, where a vesical fistula was found and closed by Dr. Marlow, of Toronto. Dr. Spencer examined the patient every year for four years after operation and found no recurrence. In a letter dated March 24th, 1914, the patient reported herself as in the best of health. Dr. Spencer did not think Wertheim's operation was as good as vaginal hysterectomy with the cautery for early cases of squamous carcinoma of the portio; but for extensive growths and for adeno-carcinoma it was much better.

Mr. T. G. STEVENS described two cases of Hysterectomy for Ante-partum Hæmorrhage. The first was one of central placenta prævia in a patient, aged 37, 28 weeks advanced in her twelfth pregnancy. She was admitted to Queen Charlotte's Hospital at 1 A.M., having had a severe blood loss the evening before. The os uteri admitted two fingers and the whole lower uterine segment was covered by placenta as far as the finger could reach. A de Ribes' bag was introduced above the placenta, considerable hæmorrhage occurring during the procedure. Subcutaneous saline and morphia $\frac{1}{4}$ gr. were given owing to signs of collapse. Seven hours later the bag was expelled, the uterus was in a state of tonic contraction, and the cervix had closed up after allowing the bag to pass. No further hæmorrhage occurred. At this point Mr. Stevens saw the patient, and after debating the question as to the best method of delivering her, so as to avoid further blood loss, came to the conclusion that hysterectomy without opening the uterus offered the best solution. As the child was already dead, this operation was performed under morphia-atropine open ether anaesthesia, with infiltration of the abdominal wall by urea-quinine hydrochloride. Four pints of saline were infused subcutaneously. The operation proved to be a very easy one, and was practically shockless. The patient made an uninterrupted recovery. The second case was one of external and concealed accidental hæmorrhage in a patient aged 33, about 30 weeks advanced in her ninth pregnancy. She was admitted to Queen Charlotte's Hospital at 4 A.M. with the history of a big hæmorrhage at 10 P.M. the previous night. There was no hæmorrhage on admission, the pulse was 112-120, the patient looked very anæmic, and no placenta could be felt in the lower uterine segment. The patient was kept quiet in bed, and 12 hours after admission bleeding recommenced. An attempt to introduce a de Ribes' bag failed owing to the rigidly closed internal os. Pituitary extract, $\frac{1}{2}$ c.c., and a little later morphia, $\frac{1}{4}$ gr., and 4 pints of saline were given subcutaneously, after which the external bleeding ceased. The patient, however, had a pulse of 150, and an examination of the uterus resulted in a provisional diagnosis of concealed hæmorrhage. Seeing that the child was dead, the internal os closed, and the patient in a very serious condition, Mr. Stevens decided that hysterectomy without opening the uterus offered the best chance of saving the patient's life. This was done under morphia-atropine open ether anaesthesia, with novocaine infiltration of the abdominal wall. Again the operation was very easy, and proved to be shockless, the pulse falling from 150 to 134 at the end of the operation. The patient made a good recovery. The reason for the choice of hysterectomy rather than Cæsarean section in these two desperate cases was the impossibility of any guarantee that the latter operation could be done without further considerable blood loss. Both patients had lost so much that a further loss of a pint would

almost certainly have proved fatal. Further, at the time that Mr. Stevens saw the patients there was no possibility of delivery *per vias naturales* without a considerable loss. The actual amount of blood lost during the operation in each case did not amount to three ounces, and under the method of anaesthesia chosen the operation was shockless.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Exhibition of Specimens.—Intestinal Stasis.

A MEETING of this section was held on Dec. 11th, 1914, Sir JOHN LENTAIGNE being in the chair.

Mr. D. KENNEDY exhibited a portion of Resected Intestine showing Congenital Absence of Cæcum and Appendix, with Atrophied Ascending Colon removed from a girl aged 20. Four years ago she had a subcostal abscess on the right side, which seemed to be shut off from the abdominal cavity. The opinion formed was that it was a localised tuberculous abscess, and on opening it she made a good recovery. Two years afterwards she developed a fecal fistula, which was operated on about three weeks ago. The abdomen was opened away from the fistula and a resection done, followed by lateral anastomosis. The portion of the large intestine anastomosed was about the middle of the transverse colon. The opinion of the pathologist who examined the specimen was that it was a congenital malformation, and that the atrophied ascending colon was the result of inflammatory trouble, probably of tuberculous origin. Some rearrangement of the muscle fibres practically proved the condition to be congenital.—Sir JOHN LENTAIGNE thought the origin of the trouble had been inflammatory in character, as many such cases were reported. He suggested that it had probably originated in or about the appendix. One of the reasons why he did not think this case was congenital was the fact that the girl had been well for 16 years. He thought that if she had suffered from a congenital derangement to the extent shown in the specimen involving such a tight stricture she would have showed symptoms earlier.—Dr. W. M. CROFTON regretted that it was not known whether the abscess in the first instance was due to tubercle or other micro-organisms. He suggested that the patient might have been saved a very severe operation if at the time the cause of the original abscess had been ascertained, and she was inoculated against it.—Mr. KENNEDY, in reply, said he did not look upon the atrophied ascending colon as congenital. He only attributed the cæcum and absence of appendix to congenital defect. As to the suggestion of saving the girl from operation, he thought it was beyond his power to render this abnormal intestine normal by any dose of vaccine. The ileo-cæcal valve was also abnormally narrow and would not permit a pencil to pass.

Mr. A. J. MCA. BLAYNEY showed a number of small Stones removed from inside the capsule of the prostate. There was a history of pain and frequency of micturition, and blood was said to have passed. An attempt at cystoscopy had been made in America. On a cystoscopic examination being made a tumour could be seen. The patient stated that urine occasionally came through the rectum. Per rectum a mass of the shape of the prostate could be felt, somewhat like a stone. The history, which extended back over ten years, was against malignancy. A diagnosis of prostatic calculi was made and perineal operation was done, when the stones were removed from the prostatic urethra.—Sir JOHN LENTAIGNE said the case was of importance on account of the occasional difficulty in diagnosis between malignant disease and this condition.—Mr. C. A. BALL said he had a somewhat similar specimen given him some years ago, but the number of calculi and their size were larger; and the diagnosis was made by rectal examination as crepitus could be detected.

Mr. BLAYNEY related his experiences of an operation recommended by Patterson for the relief of Intestinal Stasis. This operation consists of the removal of the cæcum, ascending and part of the transverse colon. The cases in which the operation was performed had as a rule suffered from marked ptosis of those parts of the intestine. The

operation had been done 21 times, with three deaths. In those who survived there had been a very marked improvement.—Mr. HENRY STOKES discussed the question of sacrificing or saving the great omentum. He thought Mr. Blayney was to be complimented on the low mortality-rate in these cases.—Dr. E. M. MAXWELL said she thought that the subject would become more important as time went on and methods became more exact. She suggested that the primary focus of many things would be discovered, such as inflammations of the eye. She referred to one of the cases mentioned in the paper. A patient, aged 38, met with an accident to his eye; the day following she extracted a piece of iron, and he underwent a normal convalescence, but at the end of a year he returned with acute iritis of the right eye. The patient informed her that during that year he was receiving treatment for constipation and dyspepsia, and about this time Mr. Blayney resected a portion of the colon, and within five days the visual power was recovered, and within two months of the operation vision was as good as it had been before.—Dr. CROTON said the operation was a very severe one, and obviously, even in the most skilled hands, was attended by a very high mortality. The cases that had recovered were undoubtedly much improved and taught important lessons. Lane had shown the importance of the intestine, especially the large one, as a source of infection, but if it were possible to get the gastro-intestinal tract working without these operations it would be desirable to do so.—Sir JOHN LENTAIGNE said if the value of this procedure was to be understood and the best means planned for treating these cases the causation of the trouble ought to be known. The ideas generally held about it were very vague. He thought a perfect elucidation had been given by Professor Combe, of Lausanne, who had written two books on the subject, laying down in the plainest possible way, from his point of view, the pathology and treatment of these conditions. According to Combe the essence of the trouble in all these cases was the absorption of poisons from the large intestine produced by the decomposition of nitrogenous portions of food. This bacterial decomposition of food occurred in every one, but in the normal individual there were safeguards by which it was checked, and it was only when these barriers broke down that ill health ensued. There were many other conditions which were produced by absorption of these poisons, and all of them at some time or other were amenable to medical treatment. Great improvement could be brought about by diet, but nevertheless many cases came to the surgeon sometimes owing to an acute attack and sometimes because they objected to restriction in diet or were too poor to be able to get suitable dieting or to face the long and tedious, and more or less uncertain, medical treatment, and therefore had to be treated by a surgeon quickly. It was therefore necessary that the best treatment should be ascertained. What the surgeon saw when he opened the abdomen was probably the result of a very slow process which had gone on for years. As to the operation, Sir John Lentaigne considered that the best plan where the surgeon must interfere was to get a free emptying of the bowel, and so relieve the stasis. He was entirely in agreement with Lane as to complete removal of the colon, but it was a very dangerous operation, and unless the technique was perfect the patient was very subject to sepsis. Mr. Blayney's operation, although it removed the worst part of the sink in which the putrefaction was going on, left sufficient of the large intestine to cause further trouble. He looked upon Mr. Blayney's patients as likely to be improved but not cured.—Mr. BLAYNEY, in reply, largely agreed with the remarks of Sir John Lentaigne as to the cause of the condition. The operation suggested by him was intended only for cases that could not be treated medicinally, and its object was to restore as far as possible the normal condition.

ULSTER MEDICAL SOCIETY.—At a meeting of this society, held on Jan. 7th in the Medical Institute, Belfast (Dr. J. S. Morrow, the President, in the chair), Dr. J. L. Rentoul read a paper on Diagnosis in Phthisis, Dr. G. A. Hicks read Notes of a Case of Acute Intestinal Obstruction Caused by a Dermoid Cyst of the Ovary, and Dr. A. Gardner Robb opened a discussion on the Present Outbreak of Scarlet Fever in Belfast.—Interesting discussions followed the reading of these communications.

Reviews and Notices of Books.

On Pharmacotherapy and Preventive Inoculation applied to Pneumonia in the African Native, with a Discourse on the Logical Methods which ought to be Employed in the Evaluation of Therapeutic Agents.

By Sir ALMROTH E. WRIGHT, M.D. Dub., F.R.S. London: Constable and Co. 1914. Pp. 124. Price 4s. 6d. net.

THE lengthy title of this little book somewhat recalls the titles of the pamphlets which were at one time so much favoured by learned men, and the contents of its first part correspond to some extent with such a comparison, being largely logical and polemical in character. The main thesis of this first part is the question of the value of æthylhydrocuprein hydrochlorate in the treatment of pneumonia, and certain experiments are set forth which were directed towards ascertaining the action of this substance on pneumococci in the presence of serum. Unfortunately, the results obtained in human patients are disappointing, and the drug has some tendency to affect the optic nerve and cause blindness; it is in Wright's phraseology "optico-neurotropic." The rest of the first part of the book is devoted to a discussion of the methods by which we arrive at truth in scientific medical investigation, and these are, according to the author, two—viz., the experiential and the statistical. The latter is praised and practised by Professor Karl Pearson, who has thereby arrived at conclusions unfavourable to the value of the method of estimating the opsonic index of the serum devised by Wright. This may perhaps explain to some extent the latter's apparent preference for the so-called experiential method, which is a process of induction by the individual observer, based on his own experience, the value of the conclusions reached depending on the character of the observer and on his carrying out proper methods of research with due control experiments. This is a little reminiscent of Aristotle's method of defining the virtues, each of which occupies a middle point between two vices, and this middle point is fixed "by reason and by the judgment of the practical man." It would seem that the practical man of one country—say, Germany—may differ from that of another—for instance, one of our own countrymen—as to the exact point where vice ends and virtue begins; and however immaterial this may be in the moral field it is inconvenient in science. "Authority" will always have weight, but decision by authority hardly constitutes a valid scientific method. At all events, the seeker for knowledge will be faced by the difficulty of determining who are the competent, and therefore authoritative, persons whose conclusions he can accept.

The second part of the book is devoted to the question of the use of vaccines in the prophylaxis and treatment of pneumonia, the subjects of observation being the native labourers in a South African mine. It seems that such natives are more susceptible to pneumococcal infection than are Europeans; that a considerable dose of vaccine—1000 millions or so—may have some prophylactic efficacy, but only for a brief period of time; and that while the administration of a vaccine during the incubative period of pneumonia may abort the attack, the use of this method in cases of the developed disease is of uncertain value. Many other interesting points are incidentally recorded,

which we have not space to mention in a brief review. An appendix dealing with recent observations by others on the use of "optochin" (æthylhydrocuprein hydrochlorate) in pneumonia suggests that the danger of this remedy is less than was previously supposed, and that it is worthy of further trial on human patients.

The book is interesting and stimulating, as is most of its author's work.

Abwehrfermente.

Von EMIL ABDERHALDEN, Direktor der Physiologischen Instituts der Universität zu Halle a.S. Vierte, bedeutend erweiterte Auflage, mit 55 Textfiguren und vier Tafeln. Berlin: Julius Springer. 1914. Pp. 404. Price 12 marks.

It was only on May 16th last that we had occasion to review the third enlarged edition of this work on the "Defensive Ferments of the Animal Organism," as translated by Dr. J. O. Gavronsky and Mr. W. F. Lanchester. The first (1912) and second (1913) editions in the German text were reviewed in THE LANCET of Jan. 4th, 1913, and Nov. 8th, 1913. Now we have a fourth enlarged edition. These editions appear with almost bewildering activity. The third German edition is not before us, but we have compared the fourth German edition with the English translation of the third German edition. Substantially the text of the latest edition up to a certain point is much the same as the third. There are here and there omissions and addenda in the general text. In this edition the list of contents has been split up, so as to show more fully in detail the subjects dealt with, while in the text itself indications are given which enable the reader to see at a glance the subject under discussion, and the text itself is adapted in paragraph form accordingly. The author is far from thinking that he has attained finality in his researches; in fact, according to his statement in the preface, it is still impossible to give a final decision as to the practical value for the pathologists of the methods which he has employed.

Of the three additional plates the first one is coloured and shows the plumage of the bullfinch, which it appears has a testicle on one side and an ovary on the other. These animals "have on one side male and on the other female plumage, each being delineated accurately, and without any transition, along the middle line of the body." This subject is introduced as "a particularly fine example of the specific action of gland secretions upon cells of specific structure." The second plate is meant to show the method and result of the "ninhydrin" test and the biuret reaction, while the third shows the results obtained when a coloured substrate is acted on by the proteolytic ferments substrate present in serum.

In addition to what appears in the English edition, an account is given of the following questions and problems, some of which are new and which on account of their special importance are treated separately (pp. 139-204)—e.g., the employment of dialysis for determining blood-free substrates in blood serum, the proof of dysharmonious substances by means of biological methods, "specificity" of the defensive ferments, the origin of the proteolytic ferments of blood plasma, the "inactivating" of dysharmonious ferments and their "reactivating," adsorption of dysharmonious ferments by the substrate, the application of the dialysis and optical methods

in clinical problems and a criticism of the same, the carrying out of physiological and clinical experiments, and other cognate subjects. The chapter on methods has been added to and has been made more practical by the introduction of illustrations to show some of the more complex technical processes employed. The literature is brought approximately up to date, but there is no index. As if to bring the very latest results to the attention of the reader there is an addendum of a few pages.

As, according to the author, it will take many years of investigation to work out the problems herein presented, even this striking contribution to a weighty yet obscure problem can be regarded only as an instalment. We wish the author a successful continuance after the war is over in his persevering endeavours to illuminate a subject of great practical importance. An article in THE LANCET this week by Dr. Gavronsky, giving the results of clinical investigations based on Abderhalden's methods, will be read with interest, and will certainly tend to raise confidence in Abderhalden's work.

Cunningham's Manual of Practical Anatomy.

Revised and edited by ARTHUR ROBINSON, Professor of Anatomy in the University of Edinburgh. Sixth edition. Vol. II., Thorax, Head and Neck. With 267 illustrations in the text and 11 plates. London, Edinburgh, and Glasgow: Henry Frowde and Hodder and Stoughton. 1914. Pp. 636. Price 10s. 6d. net.

NEW editions of the "Manual" come fast, and this fact is in itself some guarantee that the subject matter is up to date. In this sixth edition the alterations are more considerable than a mere revision of the text, and we would especially call attention to the increased prominence given to radiographs of normal living bodies. The section dealing with the brain has been considerably altered, and many new and helpful illustrations have been added to this portion of the book. It is needless to say that the nomenclature of the Basle agreement—here called, with doubtful justification, "international" terminology—is retained in this, its real British godparent. We notice the incorporation of most that is new in the teaching of anatomy since the appearance of the last issue, and we congratulate the editor upon the perpetual virility of this widely used dissecting manual.

National Health Insurance through Approved Societies. Being a Practical Legal Treatise Incorporating the Operative Orders and Regulations.

By W. ADDINGTON WILLIS, LL.B. Lond., of the Inner Temple, Barrister-at-law. London: Published for the University of London Press by Hodder and Stoughton. 1914. Pp. xxx. + 494. Price 10s. 6d. net.

THE title-page summarises the objects for which this handy-sized volume has been compiled, while the name of its author is a guarantee of lawyer-like qualities. Principally concerned, as it is, with the Insurance Act in relation to Approved Societies, it is likely to be found useful also by many who, in the exercise of their professions or officially, have to do with the practical carrying out of national insurance; and medical men, who as a rule have no time to gather information by hunting through statutes and regulations, will find Mr. Willis's methodical arrangements and lucid summaries of considerable assistance. Of course,

everyone who uses a work of this kind has to become more or less familiar with its characteristics before he can extract full benefit. To take an example from the work under review, the references in the index are to paragraphs, not to pages. A reader who gets accustomed to this method in a text-book will find that it facilitates research, as he is brought straight to his subject without having to look for it through a possibly long and closely printed page. Naturally, in a work devoted to the guidance of approved societies, only a limited portion of the contents touches upon the Insurance Act as affecting the medical man, a member of the panel, who apart from attending the patients on his lists has no interest in insurance. A very large number of the medical profession, however, are concerned in administrative and organising duties, in performing which it is an advantage to have convenient and rapid access to the law upon a particular topic, especially when that law is largely contained in a rather confusing succession of orders and regulations. This appears to be the first edition that Mr. Willis has brought out; it is not issued so early that it need require immediate revision, but no doubt we shall see other editions follow in due course.

Handbook of Obstetrics for Students and Junior Practitioners in India.

By KEDARNATH DAS, M.D., Teacher of Midwifery, Campbell Medical School, Obstetrician and Gynaecologist, Campbell Hospital, Calcutta. With 376 illustrations, Calcutta: Butterworth and Co. 1914. Pp. 612. Price 14s. net.

STUDENTS in India are to be congratulated on having at their disposal such an excellent text-book as this. The book is complete, accurate, and clearly written, and is evidently the work of a good teacher and practitioner. In his recommendation to conduct a labour with as few vaginal examinations as possible the author is very sound, and his suggestion of estimating the progress of the head, after it has descended too deeply into the pelvis to be felt from above, by pressure through the perineum, is worth bearing in mind by the student. We would suggest the great value of abdominal pressure in cases in which the birth of the body is delayed after the delivery of the head; it is free from the dangers which attend both traction on the head or the introduction of the finger into the axilla. The plan followed by Dr. Das, of leaving the breasts entirely alone when the mother is not to nurse her child, is a sound one, and it deserves to be more widely practised than it is at the present time.

The section on eclampsia is particularly good, and the author's statistics show very clearly how relatively frequent this disease is among natives of India. The observation that in Bengalese only 5.5 to 5.8 grammes of urea are excreted per diem, as against 23 to 32 grammes in Europeans, is a very interesting one. The treatment of eclampsia is fully discussed, and the uselessness of the routine transfusion of saline fluid and the advantages of a solution of sugar, if the molecular concentration of the blood is raised, are pointed out. At the same time it must be remembered that by most authorities the molecular concentration of the blood is held to be diminished and not increased. In his account of hydatidiform mole the author does not mention the valuable observations of Briggs on the fact that the relative increase in the size of the uterus may be absent, and that it may be even smaller than usual.

The influence of Whitridge Williams's teaching is evident throughout the book, and Dr. Das follows him in his neglect of the induction of premature labour as a means of treating cases of the medium degree of pelvic contraction, a view with which most obstetricians in this country would not agree. In our opinion and in the best practice this operation is successful, and although it is true that the immediate foetal mortality is high, yet the death-rate during the first year of life is not much, if any, higher than that of children born at full term. The methods of the Dublin school are not quite correctly represented in describing the treatment of accidental hæmorrhage. According to Hastings Tweedy it is not necessary that "the ovum should be intact"—that is, the membranes unruptured—and he employs plugging the vagina successfully even after rupture of the membranes.

The book ends with a series of extremely valuable hints on obstetric surgery for the use of students. These are marked by sound common sense and a clear recognition of the points upon which in teaching emphasis should be laid. We repeat that this is a good book, and we congratulate the author on his success.

A Manual of Minor Surgery and Bandaging (Heath-Pollard) for the Use of House Surgeons, Dressers, and Junior Practitioners.

By H. MORRISTON DAVIES, M.D., M.C. Cantab., F.R.C.S. Eng., Senior Assistant Surgeon in charge of beds and out-patients, University College Hospital, &c. London: J. and A. Churchill. 1914. Pp. 467. Price 7s. 6d. net.

Heath's "Bandaging" was known to many generations of medical students in all parts of the world; the book before us is a reincarnation of that widely used work, and yet it retains enough of its original points to enable anyone who knew it before to identify it, even in its new form. The general plan has not been changed, but several alterations have been made. The chapter on poisons has been omitted, as the subject hardly comes within the scope of a surgical work, while the chapter on case-taking has been replaced by one in which the general principles of the methods of examining a patient are laid down. The chapter on anæsthetics has been revised by Dr. Dudley Buxton and Dr. Felix Rood, and the newer methods have been described. Some indication of the many changes made may be gathered from the fact that nearly a hundred new illustrations have been added. We are sure that this edition will meet with the welcome accorded to previous issues of the work.

The Probation System.

By CECIL LEESON, Social Study, Higher Diploma, Birmingham University; with an introduction by J. H. MUIRHEAD, LL.D., Professor of Mental and Moral Philosophy, Birmingham University. London: P. S. King and Son. 1914. Pp. 191. Price 3s. 6d. net.

AN interesting result of the establishment of universities in the more important centres of English industrial life has been to stimulate in a remarkable degree the scientific investigation of the various social problems connected with modern urban conditions. This has been shown in definite form by the organisation in several of the provincial schools of special departments of social study, to which sociological literature is already indebted for contributions considerable both in amount and quality. Mr. Cecil Leeson's monograph on the probation system is a creditable example of the work which is being done

under these influences. It deals with a reformatory method which has come very much into favour in this country and in America as a result of the general recognition that the old-fashioned panacea of imprisonment is usually ineffective, if not positively mischievous, as a means of correcting criminal tendencies, and that recourse should be had to so extreme and dangerous a remedy only when every other way has been tried and found inadequate. Under the probation system offenders, instead of being sent to gaol, are conditionally released under the friendly supervision of a skilled social worker, known as a probation officer. The system has been widely applied in the United States since 1878, both to juvenile and to adult offenders, and it received full legislative sanction in England by the Probation of Offenders Act, 1907. Mr. Leeson gives a clear and concise account of the principles of the method, and discusses its merits and defects in an eminently temperate and reasonable spirit. It is satisfactory to note that he fully recognises the importance of skilled inquiry into the mental condition of persons whom it is proposed to put under probation. It is a method which is obviously useless in the case of mental defectives, and many of the failures which have exposed it to hostile criticism have been due to the error of applying it to weak-minded delinquents for whom life-long control is the only rational mode of treatment. Mr. Leeson's book is altogether a very creditable piece of work, and may be commended to the attention of readers who desire to learn something of one of the most promising developments in preventive criminology.

MISCELLANEOUS VOLUMES.

OUR Miscellaneous column this week fully lives up to its name, covering as it does popular philosophy, travel, war, and linguistics.

In the form of a dialogue, one of the speakers being a charming woman "once a swimming reptile," as she is informed, Mr. H. DE VERE STACPOOLE in *The New Optimism* (London: John Lane. 1914. Pp. 42. Price 3s. 6d. net), epitomises the story of evolution, with the object of showing that the world has a meaning and life an aim, that side by side with the building up of forms there is a building up of character and a "progression towards the benign." Whether or not we accept the conclusions which the book presents to us, "The New Optimism" is intellectually stimulating.

A Woman in China (London: T. Werner Laurie, Limited. Pp. 890. Price 15s.), by MARY GAUNT, a great traveller, is written in the bright, breezy, discursive style that characterised her book "A'one in West Africa." It gives a picture of China and things Chinese under the modern conditions of the new republic which will be of interest not only to those to whom far Cathay is quite unknown, but also to those whose previous conceptions are based on a personal experience of some decades ago. It contains little of any special medical interest, though in Chapter XIV. the amateur medical services of the devoted missionary (not a medical man) and his wife at Jehol, aided by a German girl who was a certificated midwife, are briefly depicted with a sympathetic touch. The book is elaborately illustrated by the author's own photographs, 130 in number, which greatly enhance its interest.

Chinese Self-Taught by the Natural Method, with Phonetic Pronunciation (Thimm's System), by JOHN DARROCH, Litt.D. (London: E. Marlborough and Co. 1914. Pp. 153. Price, wrapper, 4s.; cloth, 5s.), is designed to serve the double purpose of a text-book for students, officers, civil servants, missionaries, and such like, and a handbook for tourists, travellers, and other temporary visitors to China, with the exception, perhaps, of the southern ports and Hong-Kong, Canton, Amoy, and Foochow, where no spoken phrase from the book is likely to be understood. Each of these places has a totally different dialect from its neighbours, and this book professes to set out only the "Mandarin or official language," which, it is claimed, is spoken by

seven-eighths of the population, with, of course, local variations. It is up to date, as we observe that the Red Cross Society is phonetically represented as "Hung shirr dz hway," and the Chinese ideograph for it seems to a western eye to look like a lamp-post shedding its beams, followed by a dumb-bell, a St. George's cross, an old open umbrella with a skewer through the handle, and a little gable-ended cottage. We notice that the doctor (army) is "ee-sung," but in another place he is called "bo siz," and he is probably a civilian, as he comes next to the fisherman and farmer; but then the physician is also "ee-sung," and the surgeon is "wi ko ee sung." The dentist is "yah ee-sung," and turning to the "human body" list we see that "ya chirr" are teeth. The mouth is "kou," and the ideograph is nothing but a simple square. The heart is "sin," and a servant is a "yung run," and there are other indications in the vocabulary suggesting that it might be possible for a man to teach himself some sort of Chinese, though we imagine his knowledge would not take him far.—Another book of the same series is *French Self-Taught by the Natural Method with Phonetic Pronunciation (Thimm's System)*, by J. LAFITTE (London: E. Marlborough and Co. 1914. Pp. 148. Price, paper, 1s.; cloth, 1s. 6d.), a second edition of which is now out. We have expressed our opinion in reviewing the first edition on the, in our opinion, invincible difficulties inherent in any "phonetic" attempts to convey accurately pronunciation by the eye; but at the present juncture, when all that is required by many is to make themselves intelligible, the book may prove of service, instruction by word of mouth being often impracticable.

The Nightside of Japan (London: T. Werner Laurie, Limited. 1914. Pp. 233. Price 7s. 6d. net), by T. FUJIMOTO, is a quaint description by a Japanese for Europeans of native life and customs in modern Japan. Theatres, hotels, railway travelling, public baths, the temples, the Geisha girls, the Yoshiwara, and various types of Japanese are graphically described. Noticeable features from a point more nearly concerning the medical man are the sections on bathing and massage. In Japan massage is quite an occupation for the blind. There is a piquant attractiveness in the quaint English of the author, and we think the publishers acted wisely in refraining from having the manuscript corrected by a literary man, who would probably have dissipated the peculiar atmosphere of the book.

Fighting in Flanders (London: William Heinemann. 1914. Pp. 231. Price 3s. 6d. net), by Mr. R. ALEXANDER POWELL, is a vivid and graphic narrative of what the author saw in the area of war from its beginning up to the fall of Antwerp. It is told with a racy humour, expanding in places into broad farce, such as one has become familiar with at the hands of the American journalist, then again contracting with all the tenseness of tragedy as the deeper tones are sounded. As one reads the narrative it becomes easy to understand the conversion of the author—an American, as he describes himself, who went to Belgium with an open mind, knowing the English, the French, the Belgians, and the Germans equally well, and having friends in and happy memories of each of the four nations—into a "pro-Belgian." The numerous photographs by Mr. Donald Thompson add greatly to the interest of the book.

JOURNALS AND MAGAZINES.

The Journal of Physiology, Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLIX., Nos. 1 and 2. Cambridge University Press. 1914. Price 7s.—The Influence of the Vagus on Pancreatic Secretion, by G. von Anrep. In 1888 Pawlow asserted the existence in the vagi of secretory fibres for the pancreas and later in the splanchnics, and fibres in the vagus which diminish or abolish secretion. With the discovery of secretin in 1902 some began to doubt the accuracy of Pawlow's observations, while the Popielski school held that all the phenomena are to be explained by a nervous mechanism. The author, in Pawlow's laboratory, has reinvestigated the subject in dogs anaesthetised with chloroform and ether, as morphia injuriously affects the vagus fibres. The spinal cord must be completely and quickly cut, and the bulb must not be crushed. Vagus stimulation yields no secretion when the spinal cord is undivided. Why this is so is not known. Tracheotomy was performed, the oesophagus tied in the neck, a cannula placed in the duct, and the vagi exposed as they run along the oesophagus, so that they could be stimulated either in the neck or in the chest. The

experiments confirm the statement that the vagi both in the neck and in their branches contain not only secretory but also inhibitory fibres to the pancreas. Secondary and inhibitory fibres are found equally in all branches of the vagus to the pancreas. The secretion of pancreatic juice excited by the administration of secretin can also be inhibited by stimulation of the vagus. Atropine in doses sufficient to paralyse the secretory fibres of the vagus does not paralyse the inhibitory ones.—The Relation of Length to Tension Development and Heat Production on Contraction in Muscle, by C. L. Evans and A. V. Hill. This communication is of interest to physiologists. It has reference to isometric contraction.—On the Ovarian Factor Concerned in the Recurrence of the Oestrous Cycle, by F. H. A. Marshall and J. G. Runciman. The authors have investigated the problem as to what part of the ovary is responsible, or mainly responsible, for the recurrence of the proestrus and estrus in the dog, in which the cycle is very regular, and in typical cases extends over about six months. The animals were operated on about three weeks before a new heat period was due. The ovaries were exposed; at least nine enlarged Graafian follicles were pricked. The animals rapidly recovered, and three weeks later manifested what seemed the normal phenomena of heat. The animals were killed a week later and the ovaries examined microscopically. The experiments show that the occurrence of "heat" in dogs does not depend upon the presence of mature (or nearly mature) Graafian follicles in the ovaries, nor upon corpora lutea, so that some other ovarian element or combination of elements is the cause. The ovarian interstitial cells are possibly concerned in the process, but cyclical changes in the condition of these cells have not so far been observed in the dog's ovaries. The view that the ripening of the Graafian follicles and the onset of menstruation or heat stand to one another in the relations of cause to effect must be abandoned.—Fatty Metabolism in the Liver. III., Fatty Acid Infiltration of the Liver during Pregnancy and Lactation, by R. Coope and V. H. Mottram. In rabbits dieted for a month a decided increase in the fat of the liver was found to occur at, or about, the time of parturition, so that this fatty infiltration of the liver is a physiological and not a pathological process.—The Afferent Fibres of the Abdominal Vagus in the Rabbit and Cat, by K. O. Neuman.—Some Results of Excision of the Adrenal Glands, by T. R. Elliott. The observations were made on the cat, an animal which invariably dies after excision of its glands. The author's purpose was to analyse the manner of this death, and especially to see whether the end comes with a general failure of the nerve and muscle machinery of the sympathetic nervous system, inasmuch as the medulla of the gland is so closely related with that system of nerves. After removal of both glands death usually takes place on the second day. Removal of one adrenal gland in a cat does not obviously affect the animal's health, nor does it when in addition the splanchnic nerves on the opposite side are cut. It causes usually some hypertrophy of the remaining adrenal and of accessory adrenals, more especially, if not almost entirely, of the cortical tissue. Subsequent removal of the remaining gland practically always causes death, but death does not occur so quickly as when the two glands are removed at one operation. In the moribund cat the blood pressure is low, and there is nearly complete paralysis of vasomotor and cardio-accelerator nerves (all other nerves reacting in an appropriately normal manner). The paralysis is due to a change in the unstriated muscle, since pituitary extract and barium chloride have little or no effect, while adrenalin still causes a rise of blood pressure and a quickening of the heart beat. The paralysis of the vasomotor nerves is not due to shock. The paralysis is due to the absence of adrenal secretion. Some evidence is given that the cortical adrenal cells influence sex characters.—The Relation between Successive Responses of the Ventricle to Electric Stimuli and Ventricular Fibrillation, by A. G. Levy. The general direction of the observations is to support the view suggested by Mines that a circulating rhythm underlies the conditions known as ventricular fibrillation.—The Respiratory Exchanges of the Heart in the Diabetic Animal, by E. H. Starling and C. Lovatt Evans. Many researches on diabetes have shown that the respiratory quotient (R.Q.) in intact diabetic animals is low compared with that of the normal animal, and similar results have

been obtained on surviving excised organs. The author's observations were made on the heart-lung preparation of the dog. It was found that the average R.Q. for the normal dog's heart is 0.85. The heart uses 3.2 c.c. oxygen per gramme per hour when doing moderate work, and about 1.6 mg. of carbohydrate per gramme per hour when the animal is fed on a mixed diet. The lung tissue per gramme of heart uses not more than 0.5 mg. of sugar per hour as calculated from the gaseous exchanges. The R.Q. of the diabetic heart in pancreatic diabetes is about 0.71, due partly to the inability of diabetic tissue to utilise carbohydrate, though there are perhaps other factors. The average oxygen usage of the diabetic heart is 3.1 c.c. per gramme per hour, from which it is inferred that the energy requirement of the diabetic tissue is the same as that of the normal one.—The Estimation of Non-protein Nitrogen and Urea Nitrogen in Blood, by Charles G. L. Wolf. This communication is of interest to biological chemists, and hangs in connexion with the following communication. The Metabolism of the Salivary Gland: I., The Nitrogen Metabolism of the Resting Gland, by Charles G. L. Wolf and Joseph Barcroft. This, like the previous paper, will be especially interesting to biological chemists, and is an attempt to investigate the nitrogenous metabolism of the submaxillary gland by direct methods, a sharp distinction being drawn between (1) protein and (2) non-protein nitrogen.

Archives of the Roentgen Ray.—The December number opens with a valedictory note from the editor, Mr. W. Deane Butcher, who for reasons connected with his health finds it necessary "to abandon a task which for many years has been for him a labour of love." Every radiologist and probably many others will receive this announcement with the greatest regret coupled with the hope that Mr. Butcher may be spared for many years yet to watch the progress of the science he has done so much to foster and encourage. Only those who have had the privilege of coöperating with him have any idea of the immense amount of work he put into the *Archives*, and not the least important part was his regular attendance at congresses at home and abroad, where his kind and friendly disposition and his scientific enthusiasm made him one of the most respected and popular members present. This last number of the *Archives* to be issued under Mr. Butcher's direction will maintain the high standard set by him from the time he first took charge. The excellent series of articles on Diathermy is continued by Dr. E. P. Cumberbatch. This series, when completed, might well be published in book form, as the subject is one that is commanding increasing attention. Most medical journals have something to say about bullet wounds at the present time, and we have here a method of localising bullets, by Dr. F. Hernaman-Johnson, with a letter on the same subject by Mr. C. Thurstan Holland. Dr. Arthur F. Hertz contributes a paper on the X Ray Diagnosis of Gastro-Intestinal Conditions, with special reference to Appendicitis, in which he points out that in quite 50 per cent of cases the appendix can be seen if carefully looked for, and many important conditions accurately diagnosed. Dr. J. MacIntyre, of Glasgow, discusses the comparative value of X rays and radium in the treatment of malignant growths—a question that is rapidly coming to the front. With the very powerful apparatus now available and the use of screens to shut off the rays that were so prone to set up X ray dermatitis massive doses are now possible that were undreamt of a few years ago, with results that are eminently satisfactory.—In the present issue (January, 1915) of the same journal we have the first number to appear under the new editorship, which is now of a three-fold character. Dr. Robert Knox, radiologist to King's College Hospital, Dr. E. P. Cumberbatch, of the Electrical Department at St. Bartholomew's Hospital, and Dr. Sydney Russ, physicist to the Middlesex Hospital, have now taken over the charge of the *Archives*, a selection that augurs well for the future. We note with pleasure that the name of the late editor appears among the list of the collaborators. Some important experiments bearing on the question of X ray filtration and dosage are contributed by Dr. J. H. Sequeira. A paper dealing with bullet wounds, by Dr. A. J. Cleveland, describes a modification of the Mackenzie-Davidson method of localisation, while Mr. Gilbert S. Scott shows two plates illustrating some effects of the modern bullet. The notes and abstracts, as well as the other special features of this valuable journal, are very complete and useful.

THE FLOODS AND PUBLIC HEALTH.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE floods affecting, not only the Thames valley, but many other parts of the country will tax the resourcefulness of our sanitary authorities to the utmost. The dampness caused by the water that invades dwelling houses is, of course, unwholesome; but the specific contamination due to the filth floating in the water may be more dangerous. In spite of great sanitary progress, no system of drainage has been devised that can protect dwellings from sewage if the floods reach a sufficiently high level. The water in the sewers, of course, can only carry the sewage away when the outfall is at a lower level than the sewers, save where the conditions warrant elaborate pumping or exhaustion schemes. On the water rising at the outfall it penetrates the sewers, and the first thing that happens is the forcing back of a large volume of sewer air. If the sewers are not well ventilated at frequent intervals the sewer air pressed backwards by the rising flood will break the seal of the domestic drains and invade the dwelling-rooms of the houses. The actual toxicity of sewer air is not now in question—anyhow, no one wants it in the house. If the water rises higher still the sewage itself overflows from the street and yard gullies or sewer mouths. If there are closets in the basement of the houses the sewage will come out of them into the house. If the closets in the house are above the level reached by the flood there will of course be no overflow from the closet; but the lower portions of the soil pipe connecting with the sewer in the street may not be strong enough to resist the unusual pressure. The drain pipe may then burst, and then the sewage may be distributed alike upon the streets and inside the houses.

The Floods and the Sewage Disposal Works.

Even where the flood is not so extensive as to produce an extreme effect it is very likely to invade the sewage disposal works, for these must be at a very low level, and this means frequently proximity to a water course. This is not a matter which need unduly frighten us. It has been calculated that the sewage from a total population of one and a quarter million people, living in the Thames valley, ultimately reaches the Thames above the intake of the London water-supply. Yet few, if any, cities enjoy so pure and safe a water-supply as London. The sewage in the Thames valley is carefully treated and purified before it is allowed to flow into the Thames, while the London water-supply is kept safe by the efficient methods of storage and filtration employed.

The chief concern in London, of course, is the protection of the water-supply from the floods. In 1894, after severe floods, there was a considerable amount of typhoid fever in London. But since that date the water-supply, especially the storage of the water, has been greatly improved. The water reservoirs are now of such vast dimensions that the water may remain standing for a very long time before it is drawn off for use. This prolonged settling process, apart from filtering, greatly facilitates purification. There is no reason to fear in London that the flood waters will be mixed with the drinking water. The storage is so enormous that the intake of Thames water can be stopped for a while. London is drinking Thames water now which was collected before the floods. It is to be hoped the stored supply is sufficient to meet all wants till the floods are over, but the rainfall has been a very exceptional one and the floods have prevailed for some time. When the great reservoir was built at Staines complaints were made that its embankments were so lofty that they blocked out the view and spoilt the scenery of the surrounding country. Now that the floods are carrying away the contents of privies, and distributing broadcast the filth from neighbouring sewage works, we may be thankful that these embankments are too lofty for the floods to flow over them and contaminate the store of drinking water for London.

When a flood invades sewage works it swamps the filter-beds and scatters the untreated sewage in all directions. After the floods have subsided the neighbouring fields are

found to be covered with a thick and odoriferous layer of sewage sludge. The whole system of sewage disposal has become inoperative, and the only hope is that the immense volume of water produced by the flood will suffice to purify the foul matter it carries away. In the swollen river, in streets that have become small rivers, there may be a current, and a sufficiently rapid current, to wash away decomposing matter. But inside a house, confined within the four walls of a basement or a cellar, there is no current. The water stagnates and deposits filth on the walls and floors as it gradually subsides.

The Contamination of Dwellings by Floods.

In many flooded districts, especially among rural populations, there are no sewers. Even in comparatively large provincial places it will often be found that the water-carriage system is only applied to the more favoured parts of the town. There are still provincial towns of some size where, as well as water-closets, there are cesspools, privy middens, or pails. The cesspools are emptied by night-soil men once a year or oftener, while the pails are generally removed once a week. When a flood occurs in such a place the soil, of course, mixes with the water and floats away from the pails or privies, is carried all over the inundated district, into the houses, and into the wells. Thus, water and dwellings are contaminated. All these risks are now with us over a large area, and in some districts are aggravated by the large number of camps for the training of the Territorials and other troops. We know how severe the floods have been at Salisbury. It is to be hoped that the latrines for the soldiers encamped in the neighbourhood are constructed according to the most approved principles; but, even so, no system has been invented that will prevent a flood lifting out the contents of a latrine and scattering it about. A reasonable step would be to remove the camp to a district out of reach of the flood—a very practical object-lesson in military training, for when the enemy discovers the right range their shells come more rapidly than a flood. Then there is other dangerous matter besides the contents of sewers or cesspits. Apart from waste products coming from yards where skins are tanned, tripe prepared, offal dealt with, and many other unpleasant and unwholesome industries carried on, there is the vast accumulation of household refuse, the contents of our dust-bins. That, again, is scattered in all directions and brought inside our houses by the invading floods.

Remedial Measures.

From all this there results the obvious necessity of applying very prompt and vigorous measures for cleansing and disinfecting the portions of the houses that have been submerged. This, indeed, must be extended to all parts of the buildings where the damp has extended, even though it may be some distance above the highest water level. To give time for this to be properly done, it is fortunate if the waters subside gradually, as all the dwellings cannot be treated at one and the same moment. When the floods are beginning to go down, disinfectants, notably chlorinated lime, in suitable quantities should be thrown into the water that remains in the basements or cellars. There it should mix with the sludge or mud deposited by the water on the walls and on the floor. The mud should be piled up in some open space and sprinkled over with a disinfectant. The walls, floor, and ceiling of flooded rooms or cellars will require very careful washing and scrubbing, and finally should be thoroughly whitewashed. A flood provides an excellent opportunity for a general clearing. Rubbish and lumber that may have accumulated during years in cellars or under staircases and basements is rarely worth saving, and can now be very advantageously destroyed, burnt if possible. Bedding, if it has been soaked in suspect water, should not be spared unless it be of such very good quality as to warrant incurring the expense of thorough disinfection. Such cleaning work requires strict supervision. It is questionable whether all the sanitary authorities concerned have at their disposal numerous staffs to ensure that efficient measures will be taken. This is an occasion when the county medical officers of health may have to exercise their right of supervision over the smaller district sanitary authorities. The cleansing of flooded houses must be well done everywhere, and not strictly enforced in one locality and neglected in another.

THE LANCET.

LONDON: SATURDAY, JANUARY 16, 1915.

The Coordinated Study of Gunshot Fractures.

THE conditions of the present war are quite unprecedented. Not only is the number of our men actually fighting at one time greater than it has ever been before, but there is a correspondingly large proportion of the medical men of the country engaged in attending upon the wounded. Again, the fields of battle are many of them so close that an effort can be made to send the wounded back to this country quickly. Yet even the nearest battlefield is so far off that such transport, involving, as it does, the placing of the wounded on and removing them from ships, is fraught with both great difficulty and danger. In order to utilise as far as possible the services of medical practitioners at home there have been formed large general military hospitals in the British Isles, and to these the wounded are being sent either directly or after a longer or shorter period of treatment in one of the base hospitals in France. The scheme of organisation has been described in our columns, and is familiar to all our readers, who will see that a wounded man may have to go to a field hospital, a stationary hospital, a base hospital, a general hospital, and subsidiary hospital in the course of his journey to recovery, or may skip any link in the chain in accordance with circumstances personal to himself or arising out of the exigencies of warfare.

The system is probably the best that can be devised in all the circumstances; it is the outcome of much thought and practical experience and is working well on the whole, and splendidly in some directions. But in order that it may produce the best results it is desirable that a very close understanding should exist between those responsible for treatment of the patient in his various stages, so that a right course of therapeutics, if started, should be maintained, and any emendations decided upon should have the best chance of success. These remarks apply with especial force to the treatment of severe gunshot fractures. With regard to these, the march of surgery has been in advance of all practical military experience. When last we were engaged in war on a large scale near home, the rule

applied that all severe gunshot injuries of the limbs with open fractures of the bones must be amputated at once, for then the results of primary amputation were far superior to those of secondary amputation. It is now the ambition of modern surgery to save the majority of these limbs, and this ambition is happily fulfilled in many cases. But unfortunately in the attempts at conservatism lives are lost and limbs are saved in a useless condition through the endeavour to secure more perfect results than those of immediate amputation. Things were much simpler in the old days. A shattered limb was amputated on the field or at the base, and if the patient recovered there was little or nothing further to be done for him on his return home. During the Napoleonic wars our countryside was dotted with our luckless defenders, who, one-armed or one-legged, were too often compelled to look to charity for their subsistence. We shall not see this sad and discreditable spectacle again; but now, with the problems of treatment and the machinery for their solution far more complex, new difficulties arise. It is the responsibility of modern surgery to meet these difficulties thoroughly and scientifically. Take, for example, the case of a man with an open comminuted fracture of the femur, the injury received in a muddy trench. First he has to be dressed on the field or in the field ambulance; then he has to be transferred to a place of safety, the leg for the time being immobilised. At last—and the amount of delay must depend upon the general conditions of the fighting in the area—he reaches the base hospital, where his case can for the first time be fully treated. The wounds, fairly certain to be septic, demand immediate attention. They are opened up and a number of fragments of bone are found lying in their depths. Ought these to be removed or to be conserved as far as possible? No general rule of treatment has so far been formulated. This question is answered very differently by different surgeons, although the conditions must in the majority of instances be similar. In the less severe type of case sepsis may not be so virulent, nor the bone so much splintered. But here the following doubts arise. Is it wise to leave the bones alone? Is it better to allow the soft parts to remain lax and the bone ends overlapping? Or should extension be applied from the first? If the fracture is clearly exposed in the wound some surgeons may prefer to fix the fragments, by nails, screws, wires, or plates. Indeed, to every one of these questions there are different answers, and accordingly different practices. Some surgeons remove all loose bone fragments, others leave them in place, others only remove those fragments which are devoid of attachments, and others again, it is said, take out fragments, wash and replace them. Some adopt continuous extension of the limb from the outset. Some do this in a straight position whilst others maintain the semi-flexion of the joints.

We do not here advocate one method of treatment rather than another, and in any particular case he would be a rash person who should attempt to dogmatise; but we would point out that of all these various practices some must be right and others wrong when applied over a long series of cases having many qualities in common. It ought not to be merely a question of personal opinion or of text-book rule, for we may say that no opinion and no text-book can speak with authority under the peculiar circumstances of the present war. It is clear that we must be prepared to regard ourselves, as a nation, as only at the beginning of the war, and it ought to be possible at this early stage to collect a body of evidence about all these points which should in the main serve as a guide for practice in the immediate future. Take two only of the debated questions. First, ought fragments of bone to be removed from open septic comminuted fractures? We think the usual answer is in the affirmative, but patients arrive in this country with great gaps in the continuity of the large bones, which will have to be made good by difficult and tedious bone grafting at a later date, if indeed anything can be done, when very great loss has occurred. If, on the other hand, the bone fragments might safely have been left and it could be shown by a series of cases that they afterwards unite to reconstitute the broken shaft, then all workers would be in a position to benefit by this fact. Secondly, ought the fragments to be fixed by plates and screws in a septic wound? If this can be done with impunity then there is a great gain in time, saving of pain, and facility of transport. But this bold and unorthodox plating may produce disastrous results, under which the patient arrives at the general hospital with his leg firm and straight, but subsequently the whole length of the plated bone necroses and leaves a huge gap. What is to be said in such circumstances, and who is to say it? One surgeon takes out the bone fragments and another is left to deal with the flail-like limb. One surgeon screws on plates and another has to make the best of the resulting destruction of bone. At the end of the war no doubt we shall be supplied with masses of statistics justifying different procedures, and some may think that this recorded experience should be awaited, saying that the present is not the time to write but to act. But the end of the war will be too late for thousands of maimed soldiers. Surely it is desirable and possible to institute some system of coöperative effort, first in the registration of facts, and then in the carrying out of principles, so that surgeons at the field hospitals, base hospitals, and general hospitals shall be able to unite in carrying out a well-approved system. Any practice in an early stage which gives bad final results could be noted and checked, and the discovery of any new treatment or appliance should quickly be placed at the disposal of all.

Our Belgian Colleagues.

WE publish this week a circular which has gone out in many directions to medical practitioners explaining the objects of the Belgian Doctors' and Pharmacists' Relief Fund, which is being raised to organise assistance, in money and in kind, for Belgian medical men and pharmacists, both those remaining in Belgium and those who are refugees in this country. The information in the circular has all been published in different issues of the *British Medical Journal* and THE LANCET, but the time has now arrived when a consecutive story may be told with advantage, for it is difficult for anyone who is not actually concerned in the details of a movement to follow its progress from week to week. We want our readers to understand clearly both what the promoters of the Fund have before them as objects, and in what directions they have so far been able to work, for upon such understanding further support will follow.

It may be pointed out that the aims of the Fund are twofold, and that the uses to which it is proposed to put any money collected are also twofold. The terrible position of the country of Belgium—submitting, save in one tiny strip of territory, to the occupation of the Germans—has dictated both the objects of the Fund and the methods of its distribution. First, with regard to the objects, Belgian doctors and pharmacists who are remaining in their own country—and these comprise, of course, the great majority of both professions—are in the midst of a population in the most dire need of their ministrations, but to a great extent they are unable to play their professional parts. They must look on while the people die, especially the children, to whom the Belgians look to replace in due time the gaps in their depleted numbers. The devastation of war has left both medical men and pharmacists largely without money, often without houses, and, as we learn from authoritative sources, quite without any of the material with which to render actual therapeutic assistance. These pharmacists and doctors are alike in recognising that in most instances their unfortunate countrymen cannot be expected to pay fees, but even were fees obtainable the tragic situation would be the same, for medical assistance is usually of little worth in the absence of drugs, dressings, and instruments. Thus the earliest object of the Fund was to try to establish communication with the Belgian doctors and pharmacists in Belgium so that they might be supplied with drugs and instruments. How far this will be possible with any regularity or in any bulk cannot be said, but the Executive Committee of the Fund, having obtained the invaluable sympathy of the American Ambassador in London with the endeavour to create a channel of supply, is now acting through the International Commission for Relief in Belgium, and hopes soon to be able to transmit medical material to Belgian doctors and pharmacists upon some regular

plan. The second object of the Fund is the assistance of Belgian doctors and pharmacists who are refugees in this country. A large number of Belgian doctors and pharmacists are with us whose needs are urgent. Some had little or no opportunity to bring any money with them, many can obtain nothing to supplement what they brought with them, and the duration of the war will be such that any supply of money brought over by them from Belgium will be exhausted in most instances before they can return to their country to resume professional work. The Fund, out of subscriptions received and acknowledged in the medical journals, has given assistance already to certain of these refugees. A small subcommittee has been empowered to make grants of money in suitable cases, and for this purpose takes the advice of the President of the Belgian Society of Medicine in London, who personally communicates to the honorary officers of the Fund the details of the cases where assistance is required. Thus in two directions already the comparatively small sum of money as yet raised is being utilised, and in both directions it is clear that more money will be required. We have reason to believe that owing to active coöperation in the United States the difficulties attendant upon sending parcels of drugs into Belgium will be minimised, when at once large stocks of medical material should be obtained and shipped. Moreover, the medical refugees in this country are likely, as time goes on, to require more and more succour. There are, therefore, immediate uses for any money subscribed to the Fund, and real need for many more subscriptions.

But there will be a further employment for such money later. Not only is it certain that more money will be wanted in the two directions where action is already possible, but it must be remembered that it has always been the ideal of the Fund to obtain money for the assistance of Belgian doctors and pharmacists when that gallant country is free from invaders, and is making efforts, with the world-wide assistance which she will obtain, to recover from the horrible plight to which German ambition has reduced her. All nations save three will rush to the aid of Belgium when the time of her rehabilitation comes, and two of her three enemies will, it is our confident belief, be compelled to subscribe to the same object. It is the hope of the committee of the Belgian Doctors' and Pharmacists' Relief Fund to gather together a substantial sum of money, and to coöperate with similar bodies throughout the rest of the civilised world in an international movement. This is the second use to which subscriptions will be put.

LITERARY INTELLIGENCE.—Messrs. Cassell and Co., Limited, announce for immediate publication the fifth edition of Luff and Candy's "Manual of Chemistry," revised and enlarged by Mr. Candy. Much of the additional matter relates to the theory of ionisation and some of its consequences. The section on volumetric analysis has now been extended to include the volumetric aqueous solutions of the new British Pharmacopœia.

Annotations.

"Ne quid nimis."

THE REGULATION OF THE HEART BEAT.

THE "heart-lung preparation" of Knowlton and Starling has now obtained a permanent place in physiological research. By means of it the mechanical performance of the mammalian heart can be accurately studied, and clearer ideas of its capacity for work and its power of adapting its work to the mechanical conditions imposed upon it obtained. The latest experiments of Patterson, Piper, and Starling show that it is difficult to imagine a more perfectly regulated machine than the heart.¹ Leaving aside such regulatory factors as the influence of possible chemical factors and nerves in the intact body, it is plain that the heart-lung preparation is free from all nervous control, so that the question arises whether we can refer to one or a few elementary qualities of the muscular tissue the whole behaviour of the heart "under stress or light work, when efficient or failing, when stimulated or depressed by drug or nerve." This is the interesting problem which has occupied the attention of the above-named observers for the last two years. Their results are most interesting, as well as of great practical importance. The behaviour of the heart must be the sum of the behaviour of its constituent muscle fibres. It is interesting to compare its inner activity with that of skeletal muscle. In a skeletal muscle it is found that the longer the muscle the greater is the amount of chemical energy, heat production, and tension set up when the muscle passes from the resting to the active condition—results which also obtain in cardiac muscle, making allowance for the different arrangement of the heart fibres, and the fact that the heart contracts rapidly and rhythmically, so that both the tension and length of its fibres alter continuously during diastole from one beat to the next. E. H. Weber originally stated that a skeletal muscle during contraction changes into a body with other elastic properties, or, as recently expressed by A. V. Hill, "excitation causes a setting up of a new state in muscle. At and after this moment the muscle is simply a new elastic body of changed elastic properties and possessing potential energy which can be turned into work if we desire, but which otherwise will degenerate in a few hundredths of a second into heat." Neither the length nor the tension of the heart fibres can be measured directly, but on the length of the fibres depends the capacity or volume of the heart, while the tension of the muscle fibres determines the intracardiac pressure. Professor Starling and his colleagues therefore adopted methods to determine these factors during rest and activity of the heart. It is found that the "law of the heart" is the same as that of skeletal muscle. The mechanical energy set free on passage from the resting to the contracted state depends on the area of "chemically active surfaces"—i.e., on the length of the muscle fibres. They claim that this simple formula "serves to 'explain' the whole behaviour of the isolated mammalian heart—its movements, powers of adaptation to varying demands made upon it, its

¹ Journal of Physiology, vol. xlviii., 1914. THE LANCET, Nov. 7th, 1914, p. 1100.

behaviour in fatigue and under the influence of its nerves or chemical agencies, such as acid ions or adrenalin." A study of the heart shows that it is able to put out a constant amount of blood with very wide variations in the arterial pressure provided only that the venous inflow is constant. Indeed, if the inflow into the right ventricle is maintained constant, the output from the left ventricle is unaltered by the resistance presented by altered arterial blood pressure, by changed rate of beat. On the other hand, within wide limits the heart is able to increase its output in direct proportion to the inflow. A study of the respiratory exchanges of the heart shows that the metabolism of the heart increases or diminishes in proportion to the mechanical demands made upon it. The adaptation is complete, the chemical sources of energy are drawn upon in proportion to the heart's requirements. The heart, like any other living tissue, requires opportunity for recuperation. This it obtains normally by putting in its period of rest immediately after each period of activity. If a high degree of work for long periods is demanded of it it shows fatigue, which may go on to failure. As the three latest observers point out, this occurs when the dilatation, which is the mechanical result of unchanging inflow and failing outflow and is the automatic means of regulating outflow to inflow, proceeds to such an extent that the tension of the muscle fibres becomes increasingly inadequate in producing rise of intracardiac pressure. The mechanical disadvantage at which in the dilated heart the skein of muscle fibres must act finally smashes up the system and the circulation comes to an end.

EPIDEMIC OUTBREAKS IN RUSSIAN FACTORIES.

In March and April of 1914 severe mysterious epidemics broke out in many Russian factories, most of which are in Petrograd. The evidence now forthcoming as to the origin of these epidemics is analysed in *Norsk Magazin for Laegevidenskaben* for October by Professor Harbitz, who, though he does not claim to have solved all the difficulties, argues that the main causes were chronic ill-health and hysterical phenomena, which spread from patient to patient. The first outbreak occurred in a large Russian-American rubber factory, which turns out millions of goloshes. The workers sit by hundreds at long tables in a large room, and their task consists of fitting the separate pieces together. The adhesive material used contains gutta-percha and resins dissolved in benzine, the vapour of which constantly fills the room. It is a curious fact that though the factory has been in activity for 54 years symptoms of poisoning had not hitherto occurred, at any rate in the form of an epidemic. On the morning of March 25th one woman after another suddenly developed headache, giddiness, lassitude, collapse, and loss of consciousness. Nausea, vomiting, and convulsions were also observed. About 50 women were thus affected, a panic ensued, and a rush was made from the factory. Most of the patients rapidly recovered, but a few were confined to hospital for several days with headache and giddiness. On March 26th 102 similar cases occurred in another room of the same factory. The floor was strewn with writhing, unconscious women, and some men who rushed in to help also collapsed. An inspection of the room by medical men and the staff of the factory revealed nothing amiss. Next day the first room was

opened again, but the women had scarcely begun work before a new outbreak occurred, 60 new cases being observed. All work was now stopped throughout the factory, but on March 28th, when the employees arrived to receive their weekly wages, several new cases occurred. On March 30th, when the factory was re-opened, there were several new cases, but the symptoms were slighter. The employees now refused to work till several precautions had been taken. The whole factory was accordingly closed, and about 17,000 persons were out of work. The employees insisted that they had been poisoned by the adhesive material, the benzine of which had recently been changed. But this, according to the employers, was the purest benzine from Baku. They also remarked that the symptoms were practically confined to the women, although several men worked with them; and that, though the same solution was used in every room, the epidemics broke out now only in this room, now only in that. Medical men who investigated these outbreaks traced them to benzine poisoning, with which the symptoms tallied. They suggested that the cumulative effect of this drug had culminated in several persons at about the same time, and had affected women in particular on account of their weak constitution and physiological characteristics. Many neurologists, however, followed Professor Bechterew's lead in regarding these outbreaks as hysterical. Admitting that chronic poisoning might be at the bottom of these outbreaks, they maintained that their epidemic nature was due to auto-suggestion and psychic infection. The upholders of the benzine hypothesis pointed to the occurrence of similar outbreaks in rubber factories in Riga. But their arguments were shaken when several similar outbreaks occurred in factories in which benzine was not used. Three tobacco factories were successively involved, and nicotine poisoning was consequently suspected till similar outbreaks occurred in factories devoted to such widely different commodities as chocolate, clothing, machinery, wool, and jute. To what extent these outbreaks were the expression of an agitation for better sanitary conditions it is impossible to say, but Professor Harbitz considers that they were mainly due to faulty sanitation and to chronic ill-health, to which in some cases benzine may have contributed. The epidemic character of the outbreaks was, in his opinion, largely determined by psychic factors.

FLOODS AND POLLUTION.

THE remarkable figures given by Lord Desborough at a meeting of the Thames Conservancy Board in regard to the extent of rainfall over the Thames basin for nine weeks ended on Jan. 5th last must mean an increased strain on the purifying machinery of the Metropolitan Water Board. In another column we publish a communication dealing generally with the increased demand upon the capacity of our sewerage system and its relation to public health. In the Thames basin the fall of rain was equal, we are told, to 3015 million tons, or 682,507 million gallons of water over the 3812 square miles of the area. It may be presumed that part, at any rate, of this flood water would be impounded in the storage reservoirs in order to keep up the domestic supply, and that in spite of the mass of impurities which it must sweep from agricultural land a good

amount of this water must reach the reservoirs. The well-known purifying process of sedimentation by storage would obviously occupy a much longer time for completion in order to bring the water to a sufficiently pure state for drinking purposes. It is to be hoped, however, that the increased vigilance which would seem imperative at a time when a great flow of storm water occurs, with its heavy charge of impurities drawn from the land, will be exercised by our authorities. It will be interesting in any case to watch the future official reports upon the purity of the supply based upon the examination of samples synchronising with the flooding period. The precautions alluded to apply equally, of course, to other parts of the country which derive their water-supplies from rivers, for the excessive rainfall was general.

MEDICAL RECIPROCITY WITH BELGIUM.

By an Order in Council, published in the *London Gazette* of Jan. 8th, it is enacted that, "whereas the Kingdom of Belgium affords, in his Majesty's opinion, to the registered medical practitioners of the United Kingdom such privileges of practising in Belgium as to his Majesty seems just, during the continuance of the present war, now, therefore, his Majesty doth hereby, by and with the advice of his Privy Council, order, direct, and declare that the Second Part of the Medical Act, 1886, shall be deemed, from the date of this Order, to apply to the Kingdom of Belgium, until it is otherwise ordered." Part II. of the Medical Act of 1886 deals with the admission to the Medical Register of colonial and foreign practitioners holding medical diplomas recognised by the General Medical Council "as furnishing a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of medicine, surgery, and midwifery." The new and welcome Order in Council authorises the General Medical Council to recognise for the time being medical diplomas of approved Belgian universities, and thus to admit Belgian practitioners to the Foreign Section of the Register, with freedom to practise in the United Kingdom. The Executive Committee of the General Medical Council will take the necessary steps to give early effect to this enactment.

"BAKING" CHRONIC ULCERS OF THE LEG.

In the *New York Medical Journal* of Dec. 19th last Dr. H. D. Sonnenschein has reported good results from the treatment of chronic ulcers of the leg by "baking" the part in an electric dry-air oven at a temperature of 250° to 300° F. for 20 to 30 minutes three times a week. Sluggish granulations become healthy and active, healing is astonishingly rapid, and pain disappears after two or three treatments. The following are examples. A man, aged 63 years, had an ulcer of the size of the palm of the hand on the tibial surface of the left leg. The urine contained sugar. In diabetic and nephritic cases the patients can endure only low degrees of heat and are very susceptible to burns. Therefore the oven is heated to a lower temperature than usual. In this case 120° to 130° was adopted, and the ulcer completely healed. In another case a barman, aged 42 years, had an ulcer on the plantar surface of the foot

following an injury received 14 years before. It was 1½ inches square and three-eighths of an inch deep and the edges were very hard. There was no history of syphilis and the Wassermann reaction was negative. The ulcer had not been treated for 12 years, and the patient sought advice in consequence of the pain, which was unbearable. The ulcer was "baked" three times a week, cleansed with peroxide of hydrogen, and dressed with scarlet red ointment. Complete healing took place and the pain disappeared. In a third case a man, aged 45 years, had an ulcer on the small toe of the left foot which extended for about an inch along the border of the foot. Both feet were cyanotic and painful. In spite of the poor nutrition of the part the ulcer healed and the cyanosis and pain diminished under "baking" and the application of scarlet red ointment. Dr. Sonnenschein considers that the method acts by induction of hyperæmia, which has been found very successful in the treatment of refractory chronic ulcers. Among the means which have been adopted to induce hyperæmia are the application of Esmarch's bandage and the old but efficacious plan of immersing the part in a pail of very hot water. We may point out that, as stated in an annotation in THE LANCET of June 14th, 1913 (p. 1684), heat applied in another manner—a douche of hot air—has been used with success by French surgeons in the treatment of torpid ulcers. In 1911 M. Vignat recommended it, and at a meeting of the Société Médicale des Hôpitaux of Paris on May 16th, 1911, M. Mosny and M. Pruvost reported a case of sloughing bed sore in a patient in a bad condition after an attack of phlebitis and bronchopneumonia which rapidly healed under this treatment.

THE CORPUS STRIATUM.

SOME of the obscurity which has, hitherto enshrouded our knowledge of the large mass of basal grey matter which is known as the corpus striatum appears at length to be dissolving away. In spite of the fact that electrical stimulation of this region of the brain fails to elicit any definite motor response, yet evidence of lenticular degeneration can be clinically revealed by a syndrome of symptoms now fairly clearly recognisable, in which motor disturbances, spasm and tremor, form prominent features. Dr. S. A. Kinnier Wilson, who has brought this "lenticular syndrome" into prominence,¹ now records in *Brain* (1914, xxxvi., 427) the results of certain experimental lesions placed in this basal mass and discusses the significance of these observations. Electrical stimulation of the lenticular nucleus failed to induce any motor effect, thus confirming the results of most other observers. Electrolytic destruction, however, of definite portions of this nucleus was carried out on monkeys, which, after a period of three weeks, were destroyed, and the degenerated areas carefully examined. The results showed, in the first place, that the corpus striatum is independent of the cerebral cortex; it is also not connected directly with the spinal cord. Connexions are more intimate, however, with the optic thalamus and regio subthalamica, including the red nucleus, and this fibre system links especially with the globus pallidus portion of the corpus striatum. It is clear that this body is an

¹ THE LANCET, April 27th, 1912, p. 1115.

autonomous centre. Its function is exercised independently of the cerebral cortex, but is motor in type, and is exercised in an efferent or caudal direction. Developmentally, it appears that in the lower forms of vertebrate life the corpus striatum exercises a more dominant motor control than it can exert in the higher forms, although such control cannot attain the complexity and range afforded by the elaboration at a later phase of the cortical brain or neopallium. The final function of the corpus striatum appears to be something of a "steading" influence upon pyramidal innervation exerted through the strio-rubro-spinal tract. How this effect is brought about is suggested to be by virtue of what Sherrington terms the "final common path." The idea conveyed by this definition is that an end neuron effect, of motor type for instance, depends for its manner of action upon the particular stimulus applied to its arborisations at its proximal end, which stimulus, however, may be of varying nature, and may also reach the end neuron along different converging channels. The type of final stimulus is itself determined by the coördinate relationships between the possible sources. Amongst such channels are recognised cortical and cerebellar influences, for example; in addition, the corpus striatum is claimed to be capable of exerting an effect. Clinically it is suggested that absence of striate control induces tremor, well exemplified in cases of progressive lenticular degeneration. One question remains to be answered: Why is it that in the experiments performed tremor did not result? The reason suggested is that possibly the wide variation in functional capacity of the lenticular nucleus in different species, a variation worthy, apparently, of particular comment, forbids the anticipation that results gained in experiments upon the ape need necessarily be identically reproduced in man.

TRAUMATIC RUPTURE OF THE HEALTHY AORTA.

In the *Journal of the American Medical Association* of Nov. 28th, 1914, Dr. G. G. Copeland has reported a case in which death was due to a very unusual cause—traumatic rupture of a healthy aorta. A labourer, aged about 40 years, was struck by a large mass of falling earth, which gave him a glancing blow on the back and knocked him down. A few seconds later he was picked up dead. Dr. Copeland examined the body a few hours after death. There was a large scalp wound on the forehead down to the bone, which was not fractured. On the body were several small bruises, especially over the right loin, and the pelvis seemed to be fractured. The face and mouth were blanched, suggesting internal hæmorrhage. Nearly 10 ounces of blood were found in the peritoneal cavity. The liver was badly torn and the right kidney was torn, but the capsule was intact. The pelvis was fractured near the symphysis pubis, but the bladder was intact. The peritoneal surface of the intestines and many of the blood-vessels supplying them were torn. With these lesions the abdominal cavity should have been full of blood. The whole condition was explained when the thorax was opened. The left pleural cavity contained 38 ounces of fluid blood. Opening into this cavity were the gaping ends of the descending aorta, which was cut across as cleanly as if a knife had been used. The ends were separated an inch at the widest part and half an inch at the narrowest. The rupture was at right angles to the

length of the vessel, which was quite healthy. The intima was smooth and showed no plaques or dilatations. The heart was firmly contracted and empty and was perfectly normal. The distance from the aortic valves to the tear was $3\frac{1}{2}$ inches. The right lung was adherent to the chest wall throughout. It was solid and non-crepitant and its condition suggested the stage of red hepatisation of pneumonia. The lower lobe of the left lung contained much coagulated blood. Dr. Copeland is unable to explain how the rupture was produced. There were no external signs of the cause of death. He suggests that the rupture of the aorta may have been due to a force of the nature of contrecoup.

THE PROGNOSTIC VALUE OF SCHMIDT'S TEST IN SUMMER DIARRHŒA.

Dr. J. Sidney Pearson, of Perth, Western Australia, commenting on the value of the Schmidt test on the fæces in the *Medical Journal of Australia* (1914, vol. i., p. 491), considers it of considerable value from a prognostic point of view. His data for such a conclusion are based upon 2000 cases, though from the text it is not clear whether all were tested or whether such tests were limited to the 400 cases to which he more particularly refers. The test depends upon determining the presence or absence of altered or unaltered bile in the fæces, and is carried out in this way. A teaspoonful of fæcal material is placed in a wide test-tube, a little sterile water added, and well stirred with a glass rod. The tube is then filled to four or six times the volume with a saturated solution of corrosive sublimate, the mixture well shaken, and allowed to stand for 12 hours. By this time fæces if normal become coloured bright red. If unchanged bile pigments are present the colour becomes green. If no colour change occurs bile is absent, and the reaction is termed negative. In summer diarrhœa it is found to be generally negative; with improvement a positive reaction occurs, a green or red colour appearing. The point especially emphasised is that no single case ended fatally in which the Schmidt test continued positive or after treatment became positive. Further, Dr. Pearson never managed to cure a case in which the Schmidt test continued negative. In a final series of 200 tabulated hospital cases the results were:—

Discharged with Schmidt's test.	Negative	77
	Positive... ..	87
	Changing to positive ...	9
Died with Schmidt's test...	Negative	27
		200

Some pathological data recorded by the writer show that changes in the gall-bladder, absence of bile in the intestines, are found in these zymotic enteritis cases. He also notes that the bright green stools are not due to unchanged bile, but to a chromogenic organism, frequently the bacillus pyocyaneus.

POISONING BY TETRACHLORIDE OF ETHANE.

In our issue of Dec. 26th, 1914, we reported at some length the proceedings at an inquest upon a man who died at Hendon from the poisonous effects of the vapour of tetrachlorethane contained in a "dope" for varnishing aeroplanes. Since then two further deaths from the same cause have

formed the subjects of coroners' inquiries. The first case was that of a young woman employed at an aeroplane factory at Rochester, who died from toxic jaundice with uræmic symptoms; the inquest was held on Jan. 5th. The second case was that of a girl, aged 19, an employee at Vickers's works at Crayford, and at the inquest on Jan. 8th the medical evidence showed that death occurred with symptoms of intense jaundice, the result of toxic degeneration of the liver. In each case the jury brought in a verdict of death from poisoning by tetrachlorethane vapour used in the aeroplane "dope." We understand that the Home Office are taking energetic measures to prevent the occurrence of any further accidents from this cause; but in view of the fact that tetrachlorethane and similar substances are being used in various parts of the country, not only at aircraft works but in other industries—such as the manufacture of various preparations of cellulose—we think it advisable to draw public attention to the dangers involved in the employment of this very toxic chemical.

A METHOD OF STAINING PARASITIC AMŒBÆ.

THE difficulty of satisfactorily staining the amœbæ of dysentery and allied forms is in practice considerable, so that any method which can be relied on to give good results is of interest. The following directions are given in a recent communication by Mr. Alexander Marshall,¹ of the Wellcome Tropical Research Laboratories at Khartoum. Smears are made from dysenteric stools and transferred rapidly, while still wet, to Schaudinn's fluid. They are then washed in alcohol of different strengths and finally in distilled water, after which they are stained in Delafield's hæmatoxylin for 20 minutes. They are next washed in tap water and stained with carbol-fuchsin, as for tubercle bacilli; after which they are again washed with water and finally differentiated with Sprengel's solution of picric acid, consisting of equal parts of absolute alcohol and of saturated watery solution of the acid. This is applied for three to five minutes, during which time the reagent is changed three or four times. The stained films are then dehydrated in absolute alcohol, cleared in xylol, and mounted in Canada balsam. Thus treated, the nuclei of the parasites are stained a purplish black, while the cytoplasm is a pale translucent yellow colour. Red blood corpuscles are also stained yellow. The method is described as easy, rapid, and certain in its results, and is certainly well worth trial by those called upon to make this investigation.

¹ Reprint from the Laboratory Journal, September, 1914.

NATIONAL ASSOCIATION FOR THE PREVENTION OF INFANT MORTALITY AND FOR THE WELFARE OF INFANCY.

—This association, whose chairman is Sir Thomas Barlow, has arranged for an advanced course of lectures on infant care for voluntary health workers, mothers, nurses, &c., to be held at the Royal Society of Medicine, 1, Wimpole-street, W., on Mondays, at 5.30 P.M., from Feb. 1st, 1915, onwards. In addition to the lectures arrangements can be made for the attendance of every student at four infant consultations at selected infant welfare centres. For tickets and all further particulars, application should be made to Miss Halford, Secretary, National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C.

THE CLAIMS OF BRITISH SPAS.

(Concluded from Dec. 5th, 1914, p. 1333.)

VIII.—WOODHALL SPA.

DEVELOPMENTS of real importance from a balneological point of view commenced at Woodhall Spa, Lincolnshire, in 1887, since which time the place has advanced considerably. The spa was brought prominently before the notice of the medical profession in 1909, when a large party of medical men from London and the provinces visited the place in response to an invitation of the directors of the Woodhall Spa Company to come and see for themselves the facilities for bath treatment offered at an increasingly popular health-seeking station. It is only three hours' journey from London, and is situated amongst most attractive surroundings of a rich moorland country with charming woodland scenes in which pine and birch trees chiefly figure. The place has a restful air, and is well suited to the temperament of those persons who are likely to derive benefit from the therapeutic waters of the bromo-iodine wells.

The principal chemical feature of the Woodhall Spa water is the presence of both the bromide and iodide of potassium in distinctly important quantity, the former occurring to the extent of 3.51 grains per gallon and the latter to 0.53 grain per gallon. The total saline matters present amount to 1562.48 grains per gallon, of which 1406 grains are due to common salt according to Professor T. E. Thorpe's analysis.

Taken internally in small quantities this water is said to produce a sedative and tonic effect upon gastric and intestinal mucous membranes which is useful in some gastric and dyspeptic conditions. In larger quantities the gastric activity is increased and chronic catarrhal conditions are benefited, while the functions of the pancreas and liver are stimulated and altogether a healthier state of nutrition ensues. This alterative action of the waters is particularly observed in cases of rheumatism, gout, arthritis, enlarged glands, and inflammatory exudations. In full doses the water is mildly but distinctly purgative, while effecting a marked diuretic action. These waters, unlike so many natural waters which contain merely indifferent mineral constituents, show a composition upon which the explanation of their therapeutic action may reasonably be based. The presence of bromide and iodide of potassium, for example, may be associated with definite therapeutic results, especially when they are accompanied by chloride of sodium. In this matter the waters of Woodhall Spa are unique, as no other mineral water in this country is known to contain such important quantities of the elements iodine and bromine.

The external application of the water is provided for in many ways, a course of hot mineral baths being a routine of great assistance in cases of rheumatism and neuritis. As an adjunct a hot spray is employed. Local applications are given in the form of sprays and douches to joints, vapour inhalations and douches to the internal cavities of the nose and throat. Compresses for application to painful joints have their basis in a specially concentrated mineral water, which is further used in the form of douche or spray when a marked local reaction is desirable.

The programme of social arrangements at Woodhall Spa is attractive but unobtrusive.

IX.—PEEBLES.

Peebles, described as "the leading Scottish health resort," has qualities of environment which, coupled with the facilities for a hydropathic course, deserve to be more widely known. It is beautifully situated on the River Tweed, amidst a delightful panorama of hill, valley, and wood. It is a peaceful, restful place where "rest cures" do genuinely occur. All the accessories which form part and parcel of modern treatment by baths are to be found here on lines comparable with the installations of a spa abroad. A particular feature is made of the mud pack or "fango" for the relief of such painful affections as gout, rheumatism, and sciatica. The Nauheim and Bourbon-Lancy methods of treatment of heart affections are available. The historic St. Ronan's wells not far from the "hydro" entitle Peebles to the description of a watering place, the waters being brought to the hotel for special bathing purposes. They are saline and sulphated.

X., XI., XII.—THREE WELSH SPAS.

There is a wealth of natural mineral waters in Wales, and three spas have commanded medical support.

Llandrindod is among the best known inland watering places, and the town has developed rapidly in recent years as a well-recognised balneological station. Here are common salt and sulphur springs, the latter resembling the waters of Harrogate in containing sulphuretted hydrogen gas. The saline waters are employed chiefly in catarrhal dyspepsia and hepatic disorders, while the sulphur waters serve as an adjunct in the treatment of gouty and rheumatic states.

At Llangammarch, about 13 miles south of Llandrindod, is a spring containing common salt, calcium chloride, and barium chloride. Therapeutically the water is said to be similar in action to that of Kreuznach, and chemically it is, we believe, the only example of a natural mineral water containing so much barium salt. It is used in the treatment of chronic heart disorders, functional distress, in Graves's disease, and in rheumatic conditions. The action of barium chloride has been compared with that of digitalis. The water is employed both internally and externally. Its composition seems well adapted for preparing a Nauheim bath. The country round is very beautiful, the Epynt Mountains sheltering the village from the north-east. Treatment is provided for at the principal hotels, which have recently been greatly developed on lines consistent with the requirements of a large clientèle of patients and visitors.

Llanwrtyd, some five miles south of Llangammarch, is known chiefly on account of its strong sulphur wells, and the cases treated here are commonly skin disorders, rheumatism, and gout. There is excellent accommodation, and the bathing installations provide for most lines of treatment.

THE BRINE BATHS AT STAFFORD.

Dr. F. Milnes Blumer, medical officer of health of Stafford, has pointed out to us that at Stafford there is a brine of a potency equal to that at Droitwich which is utilised in the complete suite of baths opened by the corporation in 1892. Chemical analysis of the brine shows a similar composition in regard to saline strength. Of course, there are brine wells in other parts of the country, and all are more or

less saturated solutions of common salt. In this series of articles we were dealing more particularly with those places generally recognised as health resorts or spas. We are glad to note, however, in bringing this series of articles to a close, that at Stafford the brine wells are used for remedial purposes.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In November last the county borough of Plymouth was extended to include Devonport, thus reducing the number of towns with populations exceeding 50,000 persons at the last Census to 96. In these 96 towns 9434 births and 6736 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had been 16.1, 14.0, and 21.3 per 1000 in the three preceding weeks, fell in the week under notice to 19.4 per 1000 of their aggregate population, estimated at 18,134,239 persons in the middle of 1914. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 14.9, against a corresponding rate of 15.3 per 1000 in London. The annual death-rate last week ranged from 7.3 in Acton, 10.0 in Croydon, 11.6 in Barnsley, 11.7 in Newport (Mon.), and 12.0 in Ilford, to 26.9 in Northampton, 27.1 in Hastings, 28.0 in York, 28.2 in Preston, and 47.9 in Gillingham.

The 6736 deaths from all causes were 659 fewer than the number in the previous week, and included 487 which were referred to the principal epidemic diseases, against 411 and 575 in the two preceding weeks. Of these 487 deaths, 183 resulted from measles, 93 from whooping-cough, 84 from infantile diarrhoeal diseases, 77 from diphtheria, 35 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.4, against 1.7 per 1000 in the previous week. The deaths attributed to measles, which had been 210, 175, and 269 in the three preceding weeks, fell to 183 last week, and caused the highest annual death-rates of 1.7 in Bolton and in Gateshead, 2.1 in St. Helens, 2.3 in Wigan and in Newcastle-on-Tyne, 2.5 in Merthyr Tydfil, 2.7 in Grimsby, 4.4 in Plymouth, and 4.8 in Preston. The deaths referred to whooping-cough, which had steadily increased from 35 to 80 in the seven preceding weeks, further rose to 93 last week; the highest death-rates from this cause were 1.1 in Newcastle-on-Tyne, 1.3 in Rhondda, 1.4 in Bristol and in Warrington, 1.6 in Willesden, 1.7 in Tynemouth, and 1.9 in Gillingham. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 81, 70, and 86 in the three preceding weeks, slightly fell to 84 last week, and included 18 in London, 7 in Birmingham, and 5 each in Manchester, Oldham, and Sunderland. The deaths attributed to diphtheria, which had been 70, 66, and 89 in the three preceding weeks, fell to 77 last week, of which 19 were registered in London, 5 in Liverpool, 4 in Birmingham, and 3 each in Southampton, Birkenhead, Preston, and Sheffield. The deaths referred to scarlet fever, which had been 34, 30, and 31 in the three preceding weeks, rose to 35 last week; 6 deaths belonged to London, 4 to Sheffield, 3 to Newcastle-on-Tyne, and 2 each to Birmingham and Preston. The fatal cases of enteric fever, which had been 14, 12, and 20 in the three preceding weeks, fell to 15 last week, of which 5 occurred in London and 2 in Bolton.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 5035 to 4503 in the six preceding weeks, had further fallen to 4152 on Saturday last; 320 new cases were admitted during the week, against 451, 348, and 436 in the three preceding weeks. These hospitals also contained on Saturday last 1649 cases of diphtheria, 66 of measles, 60 of enteric fever, and 36 of whooping-cough, but not one of small-pox. The 1738 deaths from all causes in London were 311 fewer than the number in the previous week, and corresponded to an annual death-rate of 20.1 per 1000. The deaths referred to diseases of the respiratory system, which had been 313, 270, and 562 in the three preceding weeks, fell to 497 in the week under notice, and were 14 below the number recorded in the corresponding week of last year.

Of the 6736 deaths from all causes in the 96 towns, 265 resulted from different forms of violence and 568 were the subject of coroners' inquests, while 1757 occurred in public institutions. The causes of 66, or 1.0 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, and in 66

other smaller towns. Of the 66 uncertified causes of death, 16 were registered in Birmingham, 13 in Liverpool, 5 each in South Shields and Gateshead, 3 each in Southend-on-Sea and Sheffield, and 2 each in Stoke-on-Trent, Bootle, Rochdale, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,344,400 persons at the middle of this year, 1395 births and 1100 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had increased from 17.7 to 20.5 per 1000 in the four preceding weeks, further rose to 24.5 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 16.8, against a corresponding rate of 14.9 per 1000 in the large English towns. The annual death-rate last week ranged from 12.5 in Motherwell, 14.0 in Ayr, and 14.7 in Perth, to 26.3 in Glasgow, 28.2 in Aberdeen, and 30.0 in Dundee.

The 1100 deaths from all causes were 201 in excess of the number in the previous week, and included 117 which were referred to the principal epidemic diseases, against 77 and 98 in the two preceding weeks. Of these 117 deaths, 55 resulted from whooping-cough, 21 from diphtheria, 17 from infantile diarrhoeal diseases, 13 from scarlet fever, 7 from measles, and 4 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.6, against 1.4 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 35, 28, and 44 in the three preceding weeks, further rose to 55 last week, of which 38 occurred in Glasgow, 8 in Dundee, 4 in Greenock, and 2 in Clydebank. The deaths referred to diphtheria, which had been 9, 16, and 14 in the three preceding weeks, rose to 21, and included 7 each in Glasgow and Edinburgh, and 5 in Aberdeen. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 15, 12, and 11 in the three preceding weeks, rose to 17 last week; 5 deaths each were recorded in Glasgow and Dundee and 3 in Edinburgh. The deaths attributed to scarlet fever, which had been 17, 15, and 17 in the three preceding weeks, fell to 13 last week, and included 9 in Glasgow. The 7 deaths referred to measles were 4 in excess of the weekly average during last quarter, and comprised 6 in Dundee and 1 in Aberdeen. Of the 4 fatal cases of enteric fever 2 belonged to Glasgow and 1 each to Edinburgh and Paisley.

The deaths referred to diseases of the respiratory system, which had increased from 154 to 210 in the four preceding weeks, further rose to 265 in the week under notice; 32 deaths resulted from different forms of violence, against 36 and 42 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 649 births and 615 deaths were registered during the week ended Saturday, Jan. 9th. The annual rate of mortality in these towns, which had been 21.8, 17.0, and 27.8 per 1000 in the three preceding weeks, fell to 26.5 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 18.8, against corresponding rates of 14.9 and 16.8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 36.5 in Dublin (against 20.1 in London and 26.3 in Glasgow), 21.0 in Belfast, 23.1 in Cork, 13.9 in Londonderry, 33.8 in Limerick, and 22.8 in Waterford, while in the 21 smaller towns the mean death-rate was 20.5 per 1000.

The 615 deaths from all causes were 28 fewer than the number in the previous week, and included 38 which were referred to the principal epidemic diseases, against 32 and 42 in the two preceding weeks. Of these 38 deaths, 11 resulted from whooping-cough, 11 from infantile diarrhoeal diseases, 6 from measles, 5 from diphtheria, 3 from enteric fever, and 2 from scarlet fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.6, against 1.4 and 2.6 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 5, 5, and 7 in the three preceding weeks, further rose to 11 last week, and comprised 7 in Dublin, 3 in Belfast, and 1 in Cork. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 15, 9, and 10 in the three preceding weeks, were 11 last week, of which 7 were registered in Dublin, and 2 each in Belfast and Cork. The 6 deaths from measles were slightly below the average in recent weeks, and were all recorded in Belfast. Of the 5 deaths attributed to diphtheria, 2 occurred in Dublin, 2 in Kilkenny, and 1 in Londonderry. Of the 3 deaths from enteric fever, 2 were registered in Dublin and 1 in Ballymena. The fatal cases of scarlet fever belonged to Dublin and Bangor. In addition to the above deaths, a fatal case of typhus was recorded in Dublin.

The deaths referred to diseases of the respiratory system, which had been 105, 96, and 162 in the three preceding weeks, fell to 139 in the week under notice. Of the 615 deaths from all causes, 182, or 30 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 30, or 4.9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1.0 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned has been entered as Surgeon for temporary service in His Majesty's Fleet:—Robert Sharp Lawson.

The undermentioned have been granted commissions as Surgeons for temporary service in His Majesty's Fleet, and have been appointed to the *Pembroke*, additional, for Chatham Hospital:—James Edward McCausland and Frank Reginald Featherstone.

ROYAL ARMY MEDICAL CORPS.

Fred D. Bird to be temporary Lieutenant-Colonel (dated Dec. 3rd, 1914).

To be temporary Captains:—Dated Dec. 16th, 1914: Robert Sewers Berry. Dated Dec. 21st, 1914: Edwin Arthur Peters and Arthur Robert Owst. Dated Dec. 23rd, 1914: John Davies.

Temporary Captain Frederick F. Bond resigns his commission (dated Jan. 9th).

To be temporary Lieutenants:—Dated Dec. 5th, 1914: Alfred Cecil Edwards. Dated Dec. 7th, 1914: Bertam Mayhew Bone, William James Gifford Gayton, and Hans Fleming. Dated Dec. 8th, 1914: James Alexander Hendry, John Daniel Harmer, Carl Joseph Barrett Buchheim, Frank Anthony Cooke, Arthur John Ormsby Wigmore, and James Aubrey Ireland. Dated Dec. 10th, 1914: Victor Vesselovsky and Wilfrid Henry Waller Attlee. Dated Dec. 11th, 1914: David Hutcheon Paul. Dated Dec. 14th, 1914: Martin Hallam and Stephen Nockolds. Dated Dec. 15th, 1914: George Barrowclough Horrocks and Herbert Park Shackleton. Dated Dec. 16th, 1914: David Henry Griffiths, David William Jones, Gwilym Llewelyn Pierce, William Frederick Gibson, John Allan, John Henry Herbert Pearson, and George Edward Genge-Andrews. Dated Dec. 18th, 1914: George Ramsey Phillips, Frank Hendry Rae, Philip Hugh Rawson, George Richardson, and William George Thompson. Dated Dec. 19th, 1914: Harold Cane Godding and William Richard Spencer Watkins. Dated Dec. 20th, 1914: Alexander Emil Albert Burkhard. Dated Dec. 21st, 1914: William Miller, Thomas John Burton, Robert Percy McDonnell, Harry Godfrey Massy-Miles, Arthur George Grant Plumley, Kenneth Dobing Bean, Philip John Ambrose Seccombe, William Stewart Dickie, Joseph Graham, Edward William Lawrence, Harry Spencer Hall, George Pirie, Geoffrey Bower Richardson, Kenneth Goodall Hearne, Percival Butler, and Alexander Campbell White Knox. Dated Dec. 22nd, 1914: Donald Olson Riddell and Arthur William Stark Christie.

Lieutenant Edward M. Woodman relinquishes his temporary commission.

Temporary Lieutenant Alfred G. Stewart and Temporary Lieutenant Philip L. Davies relinquish their commissions (dated Jan. 10th).

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Royal Army Medical Corps.

Lieutenant Robert McCheyne Linnell to be Captain. The undermentioned Lieutenants are confirmed in their rank:—Douglas G. Evans, Charles C. Iles, Frank Griffith, John P. Mitchell, Ronald G. J. McEntire, Edward C. Linton, Ennis R. Chambers, John L. Perceval, Alexander Glen, William Barclay, Alfred L. Robertson, Oswald C. S. Tandy, John L. Kilbride, Clement Lovell, Daniel Dougal, Frank G. Lescher, William Johnson, John H. Pendered, Francis Balkwill, Edmund B. Jones, James Vallance, Joseph A. L. Wilson, Ernest Talbot, George R. Bruce, Geoffrey Marshall, William Dunlop, Henry K. V. Soltan, George Dalziel, Alfred J. Clark, William G. Shakespeare, Peter W. Ransom, Joseph I. Lawson, John E. Allan, William McCombie, James Y. Moore, Gerald P. Kidd, Trevor B. Heaton, Harry E. B. White, Kenneth K. Drury, and George M. Roberts.

TERRITORIAL FORCE.

Army Medical Services.

Captain William McC. Wanklyn, Sanitary Service, is appointed Deputy Assistant Director of Medical Services, North Midland Division.

Yeomanry.

City of London (Rough Riders): Surgeon-Captain Robert M. McQueen is seconded.

North Somerset: Private John Henry Trentham Polehampton, from the 2nd South-Western Mounted Brigade, Field Ambulance, Royal Army Medical Corps, to be Second Lieutenant.

Royal Army Medical Corps.

Welsh Border Mounted Brigade Field Ambulance: Lieutenant Devonshire P. H. Gardiner, from Attached to Units other than Medical Units, to be Captain (temporary). Walter Stuart Snell to be Lieutenant.

1st East Lancashire Field Ambulance: Leonard Emilius Harman Ross Barker to be Lieutenant.

3rd East Lancashire Field Ambulance: James Alexander Tomb to be Lieutenant.

1st West Lancashire Field Ambulance: Frederick Ryan to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance: Henry George Magrath to be Captain.

1st West Riding Field Ambulance: Captain James Ewing resigns his commission.

1st London (City of London) Sanitary Company: Lieutenant Charles J. D. Gair is seconded.

South Midland Casualty Clearing Station: To be Lieutenants: Laurence Ball and Leonard James Moir.

3rd East Anglian Field Ambulance: Lieutenant William Brander is seconded. Sigismund H. Rentzsch to be Lieutenant.

1st Scottish General Hospital: Officers whose services will be available on mobilisation: Captain John R. Levack to be Major (temporary).

2nd West Lancashire Field Ambulance: To be Lieutenants: Herbert Ellis Marsden and Joseph Henry Mather.

3rd West Lancashire Field Ambulance: To be Lieutenants: Gilbert William Rogers and Sandys Jackson Charlesworth Holden.

1st Welsh Field Ambulance: Edward Blyth Hurst Hughes to be Lieutenant.

Notts and Derby Mounted Brigade Field Ambulance: To be Lieutenants: William Adam Brechin (late Cadet Lance-Corporal, Glasgow University Contingent, Senior Division, Officers Training Corps) and Lewis Moysey.

2nd East Anglian Field Ambulance: Captain William J. Caie to be Major (temporary).

3rd West Riding Field Ambulance: William Thomas Dakin Mart to be Lieutenant.

2nd South-Western Mounted Brigade Field Ambulance: Joseph Grant-Johnston to be Lieutenant.

2nd Eastern General Hospital: The undermentioned Captains to be Majors (temporary): Richard Whittington and William H. Brailey.

4th London General Hospital: Charles Eric Wells McDonald to be Lieutenant.

Attached to Units other than Medical Units.—Captain Thomas Beard to be Major (temporary). Captain James M. Kirkness is seconded. To be Lieutenants: Henry William Case, Lancelot William Sparrow, Charles Adolphus Sampson, John Wilson Moir Jamieson, Henry Charles Coutts Hackney, Thomas Richard Webster Atkins, William Neville Pennant Williams, and Lieutenant Maurice H. Barton (from the 2nd North Midland Field Ambulance).

DEATHS IN THE SERVICES.

Surgeon-General William Henry McNamara, C.B., C.M.G., on Jan. 9th, at Ealing, in his seventieth year. He entered the army in 1867, and served in the Egyptian Expedition of 1882, taking part in the battle of Tel-el-Kebir (medal with clasp and bronze star). As principal medical officer of the British Brigade he was with the Nile Expedition of 1898 (mentioned in despatches). During the South African War (1899-1902) he became principal medical officer on the lines of communication (twice mentioned in despatches, Queen's and King's medals, with clasps). He retired in 1906.

Staff-Surgeon Horace Harrison-Smith, late R.N., at Ramsgate, in his ninety-first year. He joined the naval medical service in 1848, became a staff-surgeon in 1856, and retired in 1870, being granted a Greenwich Hospital pension in 1888.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—

A meeting of the General Council of this Fund was held at the offices of the Fund, 7, Walbrook, on Jan. 11th, when the Earl of Bessborough presided. The resolutions approved at the meeting of the Governors and General Council held at St. James's Palace on Dec. 16th were formally adopted, and the appointment of the following new members was announced: To the General Council, Lord Mersey and Sir R. Lucas-Tooth; and to the Convalescent Homes Committee, Mr. Kenneth Prescott and Mr. W. Donaldson Rawlins, K.C.

Correspondence.

"Audi alteram partem."

THE LOCALISATION AND EXTRACTION OF BULLETS.

To the Editor of THE LANCET.

SIR,—Mr. E. W. H. Shenton's exposition of his extremely practical and common-sense method of localising bullets, published in THE LANCET of Jan. 2nd, cannot fail to be of great utility in the only too numerous cases of gunshot wounds with which surgeons and radiographers are inundated in these troublous times. I have employed Mr. Shenton's methods of localisation for some years, mainly in South America, a country where one has more opportunities for the study of gunshot wounds than in Europe—that is to say, in times of peace—and I have always been able to obtain an accurate estimate of the position of the bullet in a very short time. But the matter by no means ends with the localisation. However accurate the radiographer's report and skin-markings may be (I agree with Mr. Shenton that photographs are useless in the vast majority of cases), it is often by no means an easy task for the surgeon to remove the bullet or piece of shell easily and expeditiously. Exigencies of local injury or anatomical difficulties may prevent the surgeon from making more than a small incision, very possibly in an awkward plane, and furthermore the topography of the part, clear enough in an X ray or clinical examination, may become considerably obscured when the case is on the operating table, covered over with towels and dressings, so that, even with the most accurate X ray localisation, the surgeon has to hunt about considerably before discovering the object sought for. This may not be the experience of all surgeons in this class of work, but we have certainly found it so in this hospital in the considerable number of operations for removal of bullets that we have already performed.

In consequence, on the suggestion of Captain A. H. Proctor, I.M.S., the surgeon to this hospital, we have evolved the following method of co-operation between surgeon and radiographer, which we find simplifies the operation to a great degree, and, what is more important, shortens enormously the time occupied. The patient is anaesthetised upon the X ray table, or, if preferred, local anaesthesia can be used. A very small skin incision, just large enough to admit the point of a probe, is made near the bullet, already localised by the X rays, at a point selected with due regard to anatomical requirements and the convenience of the radiographer, who will need the probe to be inserted in a direction somewhere near the horizontal. A long stout silver probe, fairly sharp at the point, and provided with the well-known "telephone" attachment, is inserted in the incision and gently forced through the tissues in the direction of the bullet. (It is almost superfluous to say that the probe point should be just sharp enough to worry through the softer tissues, without doing any damage to vessels or nerves. Here we are using a stout 9-inch probe, filed to an edge at the eye end.) With the probe so introduced the surrounding parts and the surgeon's hands are covered with a sterilised towel, under which

the probe can be manipulated quite easily, the lights turned out, and the movements of the probe watched on the fluorescent screen by the radiographer, who by simply moving his X ray tube to and fro, in the manner described by Mr. Shenton in his article, can accurately direct the movements of the probe up, down, or to either side, and can lead the point to the bullet almost at once, when the surgeon will have audible confirmation of the discovery in his telephone receiver. It is remarkable how quickly this can be done, a few seconds sufficing for a task that usually occupies many minutes. The probe once touching the bullet, it is an easy matter to remove the telephone attachment, cover the probe and incision with a small temporary dressing, which also serves to keep the probe from slipping out, and remove the patient to the theatre, where the surgeon, with such a guide, can easily cut down on the bullet, either by enlarging the small incision or in another direction altogether, this latter method obviating any danger of moving the probe while operating. The difficulty is to keep the probe from shifting during the moving of the patient to the theatre, and during the ensuing operation, in which case one's trouble is wasted. To guard against this we are going a step further and completing the entire operation on the X ray table, when screen examinations can be made at intervals if the case presents any extraordinary difficulties. In ordinary cases these are generally unnecessary.

My X ray room here with certain small preparations, such as special lighting, is perfectly suitable for operating, and the table, with a polished wood top, lends itself quite well for the purpose. Of course, the unpractical and complicated design of many X ray tables makes their use in this way impossible, but any of the wooden-topped tables with an efficient tube-moving device below can be utilised with some degree of success. I am constructing a special table for this purpose, closed in at sides and ends, and giving clear access all round for the surgeon, dressers, and the anaesthetist, also having all movements of tube-box, switch, diaphragm and regulating device all controlled by one foot. With some such table as this, and a means of darkening the room effectually and rapidly, I can see no reason why all bullet-extraction operations, and possibly certain bone operations, should not be carried out with the aid of X rays, facilitating and shortening enormously what is usually a tedious and difficult performance.

I am, Sir, yours faithfully,

C. F. CONSTANT,
Lieutenant, R.A.M.C.; Radiographer to the Meerut
Indian General Hospital.
Brockenhurst, Hampshire, Jan. 5th, 1915.

THE PROPHYLACTIC TREATMENT OF PUERPERAL INFECTION BY DILUTE SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—I am entirely indebted for the idea of this mode of treatment to the valuable paper in THE LANCET of March 15th, 1913, by Dr. J. Reynolds and Dr. Russell J. Reynolds entitled, "On the Treatment of Carbuncles, Boils, Staphylococcal Infections, and Certain Streptococcal Infections by the Internal Administration of Large Doses of Dilute Sulphuric Acid B.P."

I think the medical profession owe a debt of gratitude to Drs. Reynolds for the discovery of this

valuable therapeutic measure. The prophylactic treatment of puerperal infection I advocate is simply an extension of their mode of treatment to another septic condition, or I should say to the prevention of a septic condition, for just as I am firmly convinced that the administration of large doses of dilute sulphuric acid has a powerful effect on limiting and aborting such conditions as boils, carbuncles, so I believe the administration of this remedy has a powerful effect in increasing the resisting powers of the tissues to infection, and thus preventing infection if given early enough in such cases as childbirth, where there is a large wound surface, and always a possibility of infection.

After seeing the paper referred to above by Drs. Reynolds I commenced using the remedy as described by them for boils, carbuncles, and similar conditions. The improvement in most cases was both rapid and remarkable. I then decided to use the drug in puerperal cases in which there was any degree of puerperal morbidity, in the hope that it would limit the septic condition, as in the cases of boils, carbuncles, and other infections. The clinical results in the few cases tried were satisfactory, the administration of the drug being followed by a reduction of the pulse-rate and lowering of the temperature.

I then decided to use the drug as a prophylactic measure against infection in all labours in which there had been manipulations or operative interference, commencing the administration immediately after labour and continuing during the puerperium. I now use it as a routine treatment in all labours, whether instrumental or not. I think the action of the drug is due to the fact that when given in maximum doses it decreases the alkalinity of the blood.

I quite agree with Drs. Reynolds that the drug is useless unless given in maximum doses. I give it in 20 minim doses, with 30 minims of tinc. aurantii and water to one ounce; an ounce every four hours in an ounce of water. It is difficult to judge by results in the prophylactic treatment of any disease, as there are so many other factors to be taken into consideration, but I believe the drug is worthy of a real trial in the treatment of puerperal infection, and more especially as a prophylactic measure against infection. I believe the diminution in the alkalinity of the blood increases the resisting forces of the tissues to infection, but this needs further proof.

The one case of puerperal infection I have seen in which the dilute sulphuric acid had no beneficial effect was a case I saw in consultation—acute septicaemia. I suggested trying large doses of dilute sulphuric acid; it had no effect. The patient ultimately died. I was told shortly afterwards by a lady friend of the patient that for three or four weeks previous to her confinement the patient had been in the habit of taking three times a day a teaspoonful (heaped up) of sodium bicarbonate moistened with a little water to relieve indigestion and flatulence. Might not the large doses of sodium bicarbonate have increased the alkalinity of the blood, and so reduced the resisting powers of the tissues to infection, and might it not have counteracted any beneficial effect the acid might have excited? These are questions of the utmost importance.

I make no apology for bringing forward the subject of the prophylaxis of puerperal infection, it is one of vital importance. The mortality from

puerperal infection is still far too high in spite of all our antiseptic precautions.

We have so far devoted all our attention to the perfection of our antiseptics, but surely the question of increasing the resisting powers of the individual to infection is one of real and practical importance. My own experience is too limited to give a definite opinion as to the exact value of this drug as a prophylactic agent, but from my own observations it certainly is of value in mild cases of puerperal morbidity. All that I ask is that an extended trial may be given the treatment by those who have greater opportunities of studying its effects, and if it is found, as I believe it will be, that the treatment is of real value, the medical profession will owe an increased debt of gratitude to the introducers.—I am, Sir, yours faithfully,

Congleton.

J. L. MOIR, M.B., Ch.B. Vict.

A SUGGESTION FOR A NEW "BOWEL PACK."

To the Editor of THE LANCET.

SIR,—In introducing this simple contrivance to the notice of the profession I do so more to meet the difficulties experienced by general surgeons like myself than to offer assistance to those who never find any difficulties in any circumstances. The ordinary "bowel pack" is, I think, open to objections. Indeed, to start with, the packing of protruding bowel with many feet of gauze pads, &c., is to my mind unscientific, takes time, unnecessarily blocks a limited space, and in the end does not always attain its object. Something is required completely to shut off the bowels from the area to be operated upon, which does not take up unnecessary space, which can be easily moulded, and will retain its position.

To meet these requirements I coil fine wire between two layers of lint. The fine wire gives a certain amount of weight, and it can be moulded and bent into any shape. These pads can be made by any nurse. A piece of lint the size of the pad required is simply laid flat, then starting from the centre the fuse wire is coiled in oblong fashion, tacked at each corner at first, and down the long sides as the oblong enlarges, until the lint is covered; a second piece of lint is then placed over the wire and sewn round. I use pads varying in size from 15 or 18 inches by 10 to 9 by 5. For large size pads I use what is known as 5-amp. fuse wire and for smaller ones 3-amp. wire. The wire should be one-third of an inch apart in the large and one-quarter in the small. It is convenient to use the wire coiled upon its original reel. Only one precaution is suggested—namely, to begin and end the wire with a small loop so as to leave no free point. The pad can be thoroughly sterilised by boiling and squeezed out in warm saline before use.

To illustrate the advantage of this pad I will briefly quote a recent case when the contrivance proved very valuable. A lady was sent to me with a large fat abdomen, presenting a central scar. To the left of the scar was a large rounded swelling, diagnosed on several occasions as a ventral hernia. Vaginal examination disclosed a displaced uterus and little more. I made a large oval skin incision and removed the scar, together with a two-inch thickness of fat. A good view could then be obtained. The left rectus was thinned and bulged up by some underlying tumour.

I next opened the old scar and peritoneum, and at once introduced one of my largest pads with its long axis transversely.

In introducing the pad I had pressed it together, then opened out, and packed well down to the post abdominal wall, then pushed the upper edge well under the anterior wall above the umbilicus. Next I pressed the whole of the pad upwards. The tumour, a right ovarian cyst measuring about 8 inches by 8, presented itself quite free from any bowel. I then freed the cyst, carefully tied it off with tape, clamped and sutured in the usual way. The pad was then removed quite easily without any disturbance of the bowels.

I have found this pad very useful in packing bowel away from large appendix and pyosalpinx abscesses and in various other abdominal operations. The necessity to use only one pad does away with many anxieties and achieves a definite object.—I am, Sir, yours faithfully,

J. L. AYMARD, M.R.C.S., L.R.C.P.

Johannesburg, Dec. 15th, 1914.

THE "SHORTAGE" OF DOCTORS.

To the Editor of THE LANCET.

SIR,—The President of the General Medical Council has stated that the number of medical students now studying is about 1000 less than in 1913. He adds that the prospective diminution of our reserve supply of doctors calls for serious attention.

Sir Donald MacAlister gives no reasons for this falling off. There is little doubt but that the falling off in the number of medical students is due to the medical arrangements under the National Insurance Acts. Before these Acts were passed the newly qualified doctor could look forward to making sixpenny, shilling, and half-crown fees from a portion of the public now supplied under the Insurance Acts.

He also finds that these Acts have robbed him of the money he used to make by the supply of medicines, a loss of about £1,360,000 yearly. He finds that his private vaccination is now largely carried out by public vaccinators; that about three-fourths of his obstetric practice has been transferred to midwives; that the school board medical officers now examine, and in some places treat, the sick children; that many more patients are going into the Poor-law, voluntary, and municipal fever hospitals and into sanatoriums for consumptives; that the birth-rate and sick-rate are falling; and that prescribing chemists and quacks of all kinds are on the increase.

How can anyone hold that to encourage an increase in the number of medical students would not be a national danger? Doctors are called upon to perform many criminal acts, but if my "poverty but not my will consents" be a valid excuse, then an overplus of doctors is indeed a danger. The existence of so many medical and surgical homes will soon—if it have not already—become a public danger. Some can recall the grave dangers due, years ago, to doctors owning and "running" private asylums. Instead, therefore, of deploring a falling off in the number of medical students we should all rejoice at the fact. It will be a true gain to the public. For if there be anything more damnable in this world than a doctor having to go on his knees to pray to heaven to make his neighbours ill, so that he may provide daily bread for himself, his wife, and children, I should like to know of it.

The condition is lower, more degrading, than that of prostitution. No doubt a large number of lecturers, coaches, and professors will undergo a financial loss by a falling-off in the number of medical students; so will the medical examiners of students for their diplomas. No doubt some of the young men who have gone to the war and who would have otherwise entered as medical students will so enter when the war is over. The present drop is partly due to the war. No doubt it is also a reaction against the sadly overcrowded condition of the medical profession. We can accept Sir Donald MacAlister's statement that if the falling off in the number of medical students continues there may be a falling off in the number of doctors of 200 to 300 yearly.

So great was the dangerously overcrowded state of the medical profession that in 1886 the Medical Council issued a very ominous report, giving a census of medical practitioners in England and Wales. That report showed that in 1881 there were 15,022 practitioners registered in England, and in 1886 16,930, showing a rate of increase of 2.42 per cent. per annum. In the former year there was on an average 1 practitioner to 1747 persons, while in 1886 the average was 1 to 1662. Therefore the doctors had increased at the rate of 2.42 per cent. per annum, while the general population had increased by only 1.40 per cent. per annum. Why, therefore, should we bemoan the fact that the number is still falling? If there be healthy law in that of supply and demand, why should we when having a falling death-rate, a falling sick-rate, and a falling birth-rate contend that we must have a rising increase of doctors? It is generally accepted that we should have on an average about 3500 persons to each practitioner, for it must be recollected that fully one-third of the population receive free medical treatment and another third for a little above nothing. It is a pity Sir Donald MacAlister did not refer not only to the number of students but also to the number of doctors practising in the United Kingdom. According to the Medical Directory (not the Medical Register) the following table shows the number of doctors practising in each division of the United Kingdom on Jan. 1st, 1915:—

London	...	6,715	Population.
Provincial	...	18,109	36,070,492
Wales	...	1,415	
Scotland	...	4,070	4,760,904
Ireland	...	2,971	4,390,219
Total	...	32,290	

It will thus be seen that there is 1 doctor to 1401 persons of all ages, all incomes, and classes. It is also instructive to note that the increase of the number of practitioners for 1914 was 527, for 1814 158, and 1813 280. Therefore the number of practitioners is going up by hundreds, while the proportion of doctors to the population has increased by 1 practitioner to 1041 persons. In 1886 it was 1 to 1662.

If it be contended that there are not at present sufficient doctors for war and other purposes, I would suggest that such a condition—if it exist—could readily be met. At present a number of practitioners are employed to examine children at the elementary schools, 317 acting as principal medical officers and 524 as assistant medical officers. Supposing these 841 are required for war purposes, it would be quite easy to fill their places by the doctors who practise in the school locality. Or again, a large number of those who act as resident

medical officers to Poor-law, voluntary, and municipal free hospitals could be taken for war purposes if their places were temporarily filled by the local practitioners who do not hold hospital posts. The time must come when a full staff of visiting physicians and surgeons must be appointed to all the large Poor-law hospitals, and this is the time to make a beginning. I should not think that 5 per cent. of the practitioners in the United Kingdom have been called away to join the army and navy, for according to the Medical Directory there were 3366 medical officers in our navy and army last year. Poor-law guardians and others must not think there is a "shortage" of doctors simply because they cannot obtain a resident medical officer or a visiting medical officer for £50 to £120 a year. The school medical officer, whose duties are very light, obtains a minimum of £250 to £300 per annum from the majority of the educational authorities.

I am, Sir, yours faithfully,

Liverpool, Jan. 11th, 1915.

ROBERT R. RENTOUL.

OUR ARMY'S TEETH.

To the Editor of THE LANCET.

SIR,—The dental expert going to the war with the intention of doing good for poor Tommy's teeth is at first confident that it is simply a matter of money, and he thinks that if he had a blank cheque from Mr. Lloyd George he could put things right, but after three months' toil and vast worry he begins to understand that even with the Bank of England at his back he could not evolve a sound scheme under existing conditions. And things are growing worse, for the teeth of those who are coming out now are not even so good as those of the earlier arrivals. It seems probable that when the New Army has arrived there will be battalions of men to return on account of their teeth. It is no rare sight to find a young soldier who has not two back teeth that meet, and dozens of men have to be reported as dentally unfit for service. It would be wearisome to state the causes and complications at length, but I inscribed many of their reports with brief remarks which, if strung together in readable form, represent the pith of my experience: "Dental caries is avoidable; it is due to dental dirt, and nine-tenths of it would be obviated if the teeth were brushed properly after every meal. The British army abandoned its tooth-brush during the Great Retreat, and it has not been seen since. If the 'Jap' can clean his teeth on the battlefield, so can the English. Extra pay should be given for good teeth, and there should be an army dental corps to keep them right. Allowances to soldiers, their wives and children, in time of peace should cease whilst their teeth are neglected. Children should be taught to clean their teeth after every meal from the time they cut the first milk tooth."

Statistics are less hateful when quoted in millions, and we are expecting one or two million soldiers within the next few months. Apart from the edentulous, each man will require on the average a filling or two, probably several fillings. To put it very mildly, there will be several million fillings required, and the crucial question is, "Can it be done here?" I believe it is too big a thing without a mobilisation order. Gladly would I see my profession get its order to march. Many of the young men would be stationed behind the trenches in order to destroy an exposed pulp or to do a filling or two for a man who was otherwise sound. Others

would be attached to all the hospitals on the way to the base. At every large hospital or base there would be an efficient dental department sufficient to attend sick and convalescent men and to repair artificial teeth. Only the overflow and bad surgical cases would go to the ultimate base in London. The question arises as to how far this system can be adapted to existing conditions. The small number of dental officers with the army will be lost amongst one or two million soldiers. So nearly everything must go to London for treatment. There, of course, they will be distributed amongst all the hospitals, dental departments, and clinics which appoint dental surgeons in town and in the country. Many of the men are ready to pay for artificial teeth at about hospital prices, and when a man has bought his own teeth he is inclined to take great care of them.

One naturally inquires how the French soldier gets on with his food, and I am told that the French *piou-piou* is no better off than our Tommy in the matter of teeth, but his food is softer and generally consists of soup, meat, and vegetables all cooked together. Our men get "stew," but what they really like is a good bit of beef when they can eat it.

Under the recommendations that I have made we should get rid of most of the dental caries without treatment beyond inspection, but the fight to insist on dental cleanliness would be long and bitter. Unfortunately we cannot say that even the most educated and enlightened people are cleanly in the matter of their teeth. Their mouths would not stand inspection, and their tooth-brush would not always be beyond criticism in these days of oral sepsis.—I am, Sir, yours faithfully,

F. NEWLAND-PEDLEY, F.R.C.S. Eng.

British Red Cross Hospital No. 2, Rouen, Jan. 8th, 1915.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION:

BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

To the Editor of THE LANCET.

SIR,—Might I be permitted through your columns to thank those who have so kindly contributed to the above Fund. The amount received is £112 2s. 6d., and the whole of it has been handed over to Dr. H. A. Des Vœux.

I am, Sir, yours faithfully,

MAJOR GREENWOOD,

243, Hackney-road, N.E., Jan. 10th, 1915.

Treasurer.

DEGLUTITION IN ACUTE TONSILLITIS.

To the Editor of THE LANCET.

SIR,—A recent personal painful experience has brought to my knowledge a fact of which I was previously unaware, and which I hope may prove of comfort and service to those who suffer from acute tonsillitis and those who have the care of them. An attack of acute tonsillitis chiefly affecting the right side had rendered deglutition whether of liquids or solids a matter almost of impossibility on account of the pain it caused. Under such circumstances one naturally inclines to keep all food in the opposite side of the mouth, and so as far as possible from the affected part; and those who have suffered will remember well the pain that occurs when the bolus is delivered into the grip of the pharynx.

Quite accidentally I discovered that the pain on deglutition is very much less if the food be prepared, so to speak, and collected on the affected

side; then when the act of deglutition occurs it would seem that it is projected against the opposite side of the pharynx and so misses the acutely tender part. What the exact mechanism of this manœuvre is I do not know, but I am able to bear witness of the very great difference it makes to one's comfort when it is adopted. Fortunately the inflammatory condition in my own case did not exist long enough to enable me to carry out any number of experiments, but as far as they went they confirmed the initial one. This small fact may be known to many, but to those who are unaware of it it may, I hope, prove of service.

I am, Sir, yours faithfully,

THOS. H. KELLOCK.

Upper Wimpole-street, W., Jan. 6th, 1915.

THE ETIOLOGY OF POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—An interesting fact in Dr. George Jubb's paper published in THE LANCET of Jan. 9th is the occurrence of cases of poliomyelitis at West Kirby for the third year in succession in the same parish. This, I think, is an unusual experience in this country. My own experience with poliomyelitis has indicated as frequent coincidences the proximity to an infected cottage of stables or cowsheds, the presence in the house of several specimens of stomoxys calcitrans (the biting stable fly), and not infrequently direct evidence of the child having complained of the flies biting. Anderson and Frost have supplied direct experimental evidence of the conveyance of poliomyelitis infection by stomoxys from artificially infected monkeys to other monkeys.

It would therefore be of much interest to know the relative position of the infected houses in West Kirby and Hoylake to the nearest stables or cowsheds (distances should be given approximately in yards). This information would be of value; but the case for the stomoxys would not be limited to such evidence. An important fact mentioned by Dr. Jubb is that the Hoylake cases had a common milk-supply. Further information required here is whether the same horse and man carried the milk, because stomoxys having a particular liking for warm horse blood would be carried any distance on a horse, even though occasionally disturbed by tail-swishes.—I am, Sir, yours faithfully,

J. T. C. NASH,

County Medical Officer of Health.

The Shirehouse, Norwich, Jan. 9th, 1915.

THE MEDICAL SOCIETY OF LONDON.

To the Editor of THE LANCET.

SIR,—Owing to the war the usual programme for the second half of the session will not be issued, but postcards will be sent to Fellows from time to time giving details of the arrangements made.

The meeting arranged for Jan. 11th was not held. On Jan. 25th, at 8.30 p.m., arrangements have been made to have an X ray evening, when Dr. Ironside Bruce, Sir James Mackenzie Davidson, Dr. F. H. Humphris, Dr. Harrison Orton, Dr. A. Jordan, and others, will demonstrate and exhibit items of interest connected with the war. On Feb. 8th Sir Victor Horsley, F.R.S., will open a discussion on Gunshot Wounds of the Head.

We are, Sir, yours faithfully,

GEORGE E. GASK,

HERBERT FRENCH,

Honorary Secretaries.

Chandos-street, Cavendish-square, W., Jan. 12th, 1915.

The Belgian Doctors' and Pharmacists' Relief Fund

THIS FUND is being raised to organise relief for Belgian Doctors and Pharmacists, both those remaining in Belgium and those who are refugees in this country

THE EXECUTIVE COMMITTEE

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DR. DAWSON WILLIAMS, *Editor of the "British Medical Journal."*

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DR. S. SQUIRE SPRIGGE, *Editor of "The Lancet,"* 423, Strand, London, W.C.

MR. W. J. UGLOW WOOLCOCK, *Secretary and Registrar of the Pharmaceutical Society,* 17, Bloomsbury Square, London, W.C. } *Honorary Secretaries.*

It is requested that correspondence addressed to the Honorary Secretaries should be marked "Belgian Fund."

Subscriptions should be sent to Dr. H. A. Des Vœux, and cheques should be made payable to the "Belgian Doctors' and Pharmacists' Relief Fund," and crossed Lloyds Bank, Ltd.

THE GENERAL COMMITTEE

This Committee is in process of formation. It already includes the following names in addition to those of the Executive Committee:—

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SIR WILLIAM WHITLA.

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PROFESSOR G. ELLIOT SMITH.

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DR. J. C. MCVAIL, *Crown Nominee on the General Medical Council.*

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SIR WILLIAM OSLER, Bart.

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THE OBJECTS OF THE FUND

The Committee was started in reply to an appeal from Belgium, brought by Professor C. Jacobs of Brussels, who represented in moving terms the terrible position in which his colleagues and also the pharmacists in that gallant country were involved. At the same time, the giving of assistance to the members of the medical and pharmaceutical professions and their families who are refugees among us is clearly a matter of urgency and a worthy object of subscriptions. It was recognised at the outset that it would be impossible, while the German occupation lasted, to do more for the doctors and pharmacists in Belgium than to despatch certain packets of medical material with which the misery created by the wholesale destruction of laboratories and pharmacies might be relieved. A start has been made in this direction, and packets will be sent regularly when it is known that they can reach their destinations without interference. The position of the refugees of the two professions is in many instances utterly sad, and a large amount of money could be usefully expended to meet their immediate needs.

The plight of the pharmacists of Belgium is as heartrending as the position of the medical men, and their present needs, as well as their eventual necessities, should appeal with peculiar force to the pharmaceutical community of Great Britain. Much has been done already unofficially in the way of organising practical sympathy on behalf of those expatriated pharmacists who have taken refuge in this country, but the problems that are daily arising, together with the claims which will ultimately reveal themselves, can only be met successfully and in a manner worthy of the occasion by systematic coöperation on the lines suggested in this appeal. The President and Vice-President of the Pharmaceutical Society of Great Britain feel that British pharmacists will be proud to share the honour of repaying, in part, the enormous debt of gratitude which Great Britain owes to Belgium for its heroic sacrifices.

A comprehensive scheme is being organised under which an appeal will be made to all Scottish practitioners. A large Committee is being formed from representatives of the Universities, the Royal Colleges of Physicians and Surgeons, the Royal Faculty of Glasgow, and the pharmaceutical profession.

In Ireland the Royal College of Physicians and the Royal College of Surgeons have already taken action. A Committee including the Presidents of the Colleges,

the President of University College Dublin, the President of the Pharmaceutical Society, and many leaders of the medical profession has been formed. The Registrar of the Royal College of Physicians (Dr. T. Percy C. Kirkpatrick) and the Secretary to the Council of the Royal College of Surgeons (Dr. C. M. Benson), combine the offices of treasurer and secretary, and subscriptions may be sent to either at the Royal College of Physicians, Kildare-street, Dublin. A substantial sum of money has been already received.

The Master of the Society of Apothecaries of London, in reply to a request published in the medical journals, has received at the Apothecaries' Hall, Blackfriars, London, E.C., many surgical instruments for distribution among Belgian practitioners, and these are still being generously presented.

The Committee has already done much preliminary work, and its various steps have been reported weekly in *The Lancet* and the *British Medical Journal*, in both of which journals Dr. Jacobs's appeal was published on Nov. 21st. But sight has not been lost of a larger object. Sooner or later the rehabilitation of Belgium will be an honourable charge upon the countries saved by her courage. No doubt the State will take control of large measures to this end, but there will be room for international action whereby the doctors and pharmacists all the world over can coöperate in aiding their Belgian colleagues to a re-establishment of their professional positions. At the right time this Committee will be ready to take its share in such a movement.

SUBSCRIPTIONS RECEIVED

The following subscriptions have been received up to Jan. 5th, 1915.

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	Mr. Edmund Owen ... 5 5 0	Sargeant ... 5 0 0	Mr. A. J. Couzens ... 5 0 0
		Mr. W. J. Uglow ... 5 0 0	"The Barrhead Medical Men" (per Dr. R. Corbett) ... 5 0 0
		Woolcock ... 5 0 0	Dr. H. P. Fairlie ... 5 0 0
		Mr. F. R. Todd ... 5 0 0	Mr. J. F. Harrington ... 5 0 0
			National Union of Women's Suffrage Societies, Port Talbot Branch (collected by Dr. Henrietta James) ... 4 3 6

SUBSCRIPTIONS (continued) —

£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.				
Dr. Arthur C. Black	3	3	0	Dr. Given	2	2	0	Dr. Bruce C. Kelly	2	0	0	Mr. Russell Coombe	1	1	0
Dr. Hugh Playfair	3	3	0	Mr. C. B. Fairbank	2	2	0	Anon	1	5	0	Dr. G. A. Lyon	1	1	0
Mr. W. F. Brook	3	3	0	Dr. H. W. Webster	2	2	0	Dr. W. B. Russell	1	1	0	Miss Cooke	1	1	0
Dr. D. Macmillan	3	3	0	Colonel George Wilson,				Dr. G. Victor Miller	1	1	0	Dr. N. Gerald Horner	1	1	0
Dr. Thos. Redmayne	3	3	0	R.A.M.C.	2	2	0	Dr. Chas. W. Chapman	1	1	0	Mr. W. O. McKane	1	1	0
Dr. Archibald Finlay	3	3	0	Dr. J. M. Clarke	2	2	0	Dr. J. Wigglesworth	1	1	0	Mr. St. G. M. L. Homan	1	1	0
Dr. Johnstone Campbell	3	3	0	Dr. W. S. Syme	2	2	0	Dr. Abraham Cohen	1	1	0	Dr. Jno. Brown	1	1	0
Sir Edgcombe Venning	3	3	0	Dr. G. A. Sutherland	2	2	0	Dr. C. H. Joy	1	1	0	Dr. W. M. Palmer	1	1	0
Dr. T. E. Honey	3	3	0	Mr. W. A. Bell	2	2	0	Dr. R. S. C. Ebleston	1	1	0	Dr. Charles Aldridge	1	1	0
Dr. Luff	3	3	0	Mr. H. S. Phillips	2	2	0	Mr. G. L. Latour	1	1	0	Dr. Stanley E. Denyer,			
Dr. J. W. Grange	3	3	0	Mr. J. H. Cuff	2	2	0	Dr. Justin McC.				C.M.G.	1	1	0
Dr. J. H. Sequeira	3	3	0	Mr. W. F. Haslam	2	2	0	McCarthy	1	1	0	Mr. G. Dawson, R.N.	1	1	0
Dr. W. A. Bond	3	3	0	Dr. R. P. Jones	2	2	0	Mr. Ernest Osborne	1	1	0	Mr. Maurice Mottram	1	1	0
Mr. E. Treacher Collins	3	3	0	Dr. J. Stewart	2	2	0	Mr. Lionel Scargill	1	1	0	Dr. A. J. Rodocanachi	1	1	0
Mr. Abram Leach	3	3	0	Dr. J. P. Scatchard	2	2	0	Dr. Alfred C. Warren	1	1	0	Dr. S. S. Rendall	1	1	0
Mr. R. Macfie Johnstone	3	3	0	Dr. A. E. Larking	2	2	0	Dr. Leslie Thorne				Dr. W. H. Smith	1	1	0
"M.D."	3	3	0	Dr. Eveline Cargill	2	2	0	Thorne	1	1	0	Dr. O. L. Theobald	1	1	0
Dr. J. Theodore Cash	3	3	0	Dr. G. N. Stephen	2	2	0	Mr. H. Lynch Burgess	1	1	0	Dr. F. Vickers	1	1	0
Dr. Crawford Watson	3	3	0	Mr. G. Laphorn	2	2	0	Dr. J. Reid	1	1	0	Dr. J. W. Eastwood	1	1	0
Mr. H. S. Pendlebury	3	3	0	Dr. T. H. Galbraith	2	2	0	Mr. George H. Barton	1	1	0	Mr. H. A. Wanklyn	1	1	0
Mr. Arthur Thomson	3	3	0	Anon	2	2	0	Dr. J. Ratcliff-Gaylard	1	1	0	Dr. A. D. Jules	1	1	0
Mr. O'Dowd	3	3	0	Dr. Arthur Whitfield	2	2	0	Dr. H. Newsome	1	1	0	Dr. Fiske	1	1	0
Dr. Farquhar Buzzard	3	3	0	Dr. C. D. Muspratt	2	2	0	Dr. J. T. Conner	1	1	0	Dr. W. Howard	1	1	0
Mr. H. Bellamy Gardner	3	3	0	Dr. R. Warden Briggs	2	2	0	Dr. M. Greenwood	1	1	0	Dr. J. Wm. Roberts	1	1	0
Dr. John Playfair	3	3	0	Mr. W. Spyvee	2	2	0	Mr. William Elmitt	1	1	0	Dr. G. I. Duley	1	1	0
Mr. H. Gaselee	3	3	0	Mr. H. E. Mortis	2	2	0	Dr. W. Britain Jones	1	1	0	Dr. Chas. Buttar	1	1	0
Dr. Maynard Horne	3	3	0	Dr. C. J. Evers	2	2	0	Dr. George Pernet	1	1	0	Dr. Thos. McCrick	1	1	0
Dr. F. de Havilland Hall	3	3	0	Dr. Henry Humphreys	2	2	0	Miss Catherine Kirk	1	1	0	Mr. G. S. Kitchin	1	1	0
Sir Dyce Duckworth, Bt.	3	3	0	Mr. C. W. Goodchild (in				Colonel D. Wilkie, I.M.S.	1	1	0	Mr. W. McCallum	1	1	0
Captain Hubert Arm-				memory of Mr. J. G.				Mrs. Cressall	1	1	0	Mr. John Weir	1	1	0
strong, R.A.M.C.	3	3	0	Goodchild, of H.M.				Mrs. Grogan	1	1	0	Mr. C. W. Holmes	1	1	0
Mr. Herbert Page	3	3	0	Geological Survey)	2	2	0	Mr. F. G. Harvey	1	1	0	Mr. J. H. Bishop	1	1	0
Dr. William Pyle (prom-				Mr. Arthur Bulleid	2	2	0	Dr. A. M. Edge	1	1	0	"Secundo Curo"	1	1	0
ises further help)	3	3	0	Mr. E. B. Sherlock	2	2	0	Dr. G. Edholm	1	1	0	Mr. H. Jenkins	1	1	0
Dr. W. J. Dewar	3	3	0	Dr. M. H. Taylor	2	2	0	Dr. F. G. Bushnell	1	1	0	Mr. F. W. Monsell	1	1	0
Mr. Geo. Oliver	3	3	0	Dr. T. Roberts Williams	2	2	0	Dr. Pearse	1	1	0	Mr. E. Quant	1	1	0
Dr. Alfred Brown	3	3	0	Dr. C. D. B. Hale	2	2	0	Dr. Adams	1	1	0	Dr. G. Basil Price	1	1	0
Sir James A. Russell	3	3	0	Dr. John Freeman	2	2	0	Mr. J. W. Papillon	1	1	0	Dr. J. T. Rogerson	1	1	0
Messrs. Beach and Co.	3	3	0	Dr. H. L. McKisach	2	2	0	Mr. L. Stearn	1	1	0	Dr. J. P. Lusk	1	1	0
Mr. Charles J. Heath	3	3	0	Dr. P. Bowes	2	2	0	Dr. A. Keith	1	1	0	Dr. Duigan	1	1	0
Dr. E. Kaye-Smith	3	3	0	Dr. G. Peterkin	2	2	0	Miss Lace	1	1	0	Dr. Charles Gibson	1	1	0
Dr. H. L. Ormerod	3	3	0	Mr. J. S. McDonagh	2	2	0	Mr. J. W. Bell	1	1	0	Dr. Samuel Davidson	1	1	0
Midland Railway Sur-				Mr. H. W. Cunningham	2	2	0	Mr. R. R. James	1	1	0	Staff-Surgeon Douglas			
geons' Association (per				Dr. H. Mallins	2	2	0	Dr. N. R. Rawson	1	1	0	D. Turner	1	1	0
Mr. F. W. J. Coaker,				Dr. Jacob	2	2	0	Mr. C. J. Lewis	1	1	0	Medical Staff, R.N. Hos-			
Hon. Treas.)	3	3	0	Mr. G. S. Grierson	2	2	0	Mr. H. D. Adcock	1	1	0	pital, Dunskaith	1	1	0
Mr. H. J. Kluge	3	3	0	Dr. A. Charpentier	2	2	0	Mr. F. Dittmar	1	1	0	Mr. F. Slater	1	1	0
Dr. F. J. Smith	3	0	0	Dr. K. R. Hay	2	2	0	Colonel H. W. Joynt,				"Sincere Sympathiser"	1	1	0
Dr. A. C. Inman	3	0	0	Mr. F. Atchill	2	2	0	A.M.S.	1	1	0	Dr. Walter Dodd	1	1	0
H. B. S.	3	0	0	Mr. James Hamerton	2	2	0	Dr. George Bruce	1	1	0	Dr. Howard S. Wilson	1	1	0
Mr. Cicero S. Clark				Mr. M. S. Harford	2	2	0	Dr. J. Thonerson	1	1	0	Dr. J. Sutcliffe	1	1	0
(collected by his				Dr. William Shears	2	2	0	Dr. C. R. A. Sutton	1	1	0	Dr. J. Troup	1	1	0
daughter)	2	6	4	Dr. Edward Law	2	2	0	Dr. Gaitskell	1	1	0	Dr. C. W. Buckley	1	1	0
Mr. F. Assley Rogers	2	2	0	Dr. J. R. Currie	2	2	0	Mr. H. Hilton Heffernan	1	1	0	Miss M. H. Fraser	1	1	0
Dr. W. R. Keith	2	2	0	Mr. F. Guthrie	2	2	0	Dr. C. A. Wigan	1	1	0	Dr. A. W. Tuxford	1	1	0
Dr. F. Broadbent	2	2	0	Mr. A. McMillan	2	2	0	Dr. H. A. Latimer	1	1	0	Dr. C. P. Handson	1	1	0
Mr. F. W. Gamble	2	2	0	Mr. J. B. McVital	2	2	0	Mid-Cheshire Division of				Dr. E. J. Wood	1	1	0
Dr. Percy C. Bushnell	2	2	0	Mr. F. E. Bilson	2	2	0	B.M.A. (per Dr. A. T.				Dr. Guy B. Courtney	1	1	0
Sir St. Clair Thomson	2	2	0	Mr. F. F. Rowsell	2	2	0	Blease)	1	1	0	Dr. H. Cooper Patten	1	1	0
Dr. Herbert Lucas	2	2	0	Dr. W. F. Addey	2	2	0	Dr. and Mrs. A. P. Pugh	1	1	0	Dr. E. T. Larkham	1	1	0
Dr. Sidney Davies	2	2	0	Dr. George Arthur	2	2	0	Dr. M. Trench	1	1	0	Surg.-General O'Dwyer,			
Dr. G. H. West Jones	2	2	0	Dr. John McGregor	2	2	0	Dr. T. M. Callender	1	1	0	A.M.S.	1	1	0
Dr. F. Charlesworth	2	2	0	Dr. Soden	2	2	0	Miss Aird	1	1	0	Mr. W. H. Vickery	1	1	0
Dr. Henry Malet	2	2	0	Dr. H. H. I. Hitchon	2	2	0	Dr. J. Braithwaite	1	1	0	Dr. Rossiter	1	1	0
Mr. E. Warters	2	2	0	Surgeon-General Sir				Dr. N. F. Lock	1	1	0	Dr. South	1	1	0
Sir John W. Byers	2	2	0	Charles Cuffe, K.C.B.	2	2	0	Mr. R. H. Parker	1	1	0	Dr. D. H. Forty	1	1	0
Mr. F. Manser	2	2	0	Dr. Robert W. Nairn	2	2	0	Mr. R. L. Gifford	1	1	0	Dr. H. Finzel	1	1	0
Dr. F. S. Palmer	2	2	0	Dr. May Thorne	2	2	0	Mr. E. F. Young	1	1	0	Dr. Semple	1	1	0
"A Friend" (per Mr.				Surgeon H. W. Scott,				Dr. Charles Burland	1	1	0	Dr. John Watson	1	1	0
J. Y. W. MacAlister)	2	2	0	R.N.	2	2	0	Mr. J. P. Fennell	1	1	0	Mr. Prosper H. Marsden	1	1	0
Dr. A. R. G. Pocock	2	2	0	Mr. Kenneth Scott	2	2	0	Dr. A. Kempe	1	1	0	Mr. R. C. Fuller	1	1	0
Dr. Mary H. Carew Hunt	2	2	0	Dr. James Green	2	2	0	Dr. E. P. Wrinch	1	1	0	Dr. S. M. Salaman	1	1	0
Mr. Robert Harris	2	2	0	Dr. T. A. Chapman	2	2	0	Dr. W. E. M. Wright	1	1	0	"Anon"	1	1	0
Dr. Rattray	2	2	0	Mr. Frederic Durham	2	2	0	Dr. F. W. Mason	1	1	0	Dr. W. Townsend Storrs	1	1	0
Dr. Smallwood	2	2	0	Mr. Charles Spurrell	2	2	0	Dr. D. Dickson	1	1	0	Dr. H. Witham	1	1	0
Mr. J. Copeland Poole	2	2	0	Dr. Douglas D. Malpas	2	2	0	Dr. Lewis Reynolds	1	1	0	Dr. F. A. Hepworth	1	1	0
Dr. J. H. Garrett	2	2	0	Dr. Eliza L. Walker	2	2	0	Mr. F. R. U. Atkinson	1	1	0	Dr. H. M. Eyres	1	1	0
Dr. William Habgood	2	2	0	Dunbar	2	2	0	Mr. Irwin B. Richardson	1	1	0	Dr. J. G. Jack	1	1	0
Dr. Claude Wilson	2	2	0	Dr. T. H a m m o n d				Miss M. A. Pilliett,				Mr. A. Smith	1	1	0
Mr. George Heaton	2	2	0	Williams	2	2	0	M.B.	1	1	0	Mr. G. F. Gubbin	1	1	0
Mr. C. J. Bond	2	2	0	Dr. N. S. Finzi	2	2	0	Mr. C. S. Ashton	1	1	0	Dr. C. Lillingston	1	1	0
Mr. Charles Umney	2	2	0	Miss Witts	2	2	0	Mr. A. Stooke	1	1	0	Dr. H. E. Croker Fox	1	1	0
Dr. J. D. Malcolm	2	2	0	Dr. Daniell	2	2	0	Mr. Arthur Toone	1	1	0	Mr. G. P. K. Grey	1	1	0
Dr. A. P. Gibbons	2	2	0	Dr. B. H. Kingsford	2	2	0	Mr. W. Thornton	1	1	0	Dr. G. Crichton	1	1	0
Mr. R. B. Wall	2	2	0	Dr. Mary S. Acworth	2	2	0	Dr. W. A. Hollis	1	1	0	Surgeon-Captain G.			
Dr. Burgess	2	2	0	"M.D. Brux."	2	2	0	Dr. R. Tuxford	1	1	0	Sherman Bigg	1	1	0
Mr. F. A. Rogers	2	2	0	Mr. F. B. Bannister, R.N.	2	2	0	Messrs. G. B. Westmacott				Major C. E. Pollock,			
Association of Women				Mr. Sangster	2	2	0	and Son	1	1	0	R.A.M.C.	1	1	0
Pharmacists (per Miss				Mr. Meredith Townsend	2	2	0	Dr. Templeton Dunlop	1	1	0	Dr. Pelham C. Maitland	1	1	0
N. Renouf)	2	2	0	Miss Edith M. Ironie	2	2	0	Dr. J. Spring	1	1	0	Dr. Dora E. L. Bunting	1	1	0
Mr. W. Gowen Cross	2	2	0				Dr. Hedden	1	1	0	Smaller donations	14	14	6	

For Subscriptions received this week see opposite page.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week ending Tuesday, Jan. 12th, the subscriptions received to the Fund have been numerous, and a contribution of £112 2s. 6d. has been sent since through Dr. Major Greenwood from the Brussels Medical Graduates' Association.

The directors of the British Milk Products Company have announced their intention of sending a portion of their takings by the sale of sanaphos for one month from Monday next to the Fund, guaranteeing that the contribution shall be not less than 150 guineas.

Among those who have joined the General Committee since the last list of names was published may be mentioned Sir William Milligan, Sir Thomas Barclay, Professor Marnoch, and Professor Munro Kerr.

A meeting of the Executive Committee was held on Thursday afternoon, Jan. 7th, when the question of opening up communication with Belgium for the purpose of ministering to the wants of the Belgian doctors and pharmacists was discussed in the light of information from the United States. In the United States work similar to that which the British Fund is doing has been started. An American committee of medical men will operate through the International Commission for Relief in Belgium and will have packages, prepared by instrument makers and pharmaceutical houses of the United States, shipped for distribution in Belgium upon exactly the same method as the British Fund has adopted.

A meeting of the subcommittee empowered for the present to make emergency grants was held on Friday, Jan. 8th, when Dr. Clément Philippe attended to represent the Belgian Medical Society in London, and placed before the subcommittee the details of various cases. The grants were made. A representative of Messrs. Harrods, Limited, was present, and a guarantee was given to that firm for the supply of clothes of an agreed class to Belgian doctors whose names were submitted by Dr. Philippe.

A circular explaining the objects of the Fund, which has been widely distributed to the medical profession, will be found on page 153, and a leading article deals further with the matter this week.

The subscriptions which have been received up to Tuesday evening last by Dr. Des Vœux, in addition to £2654 previously acknowledged, and not including the subscriptions received in Dublin, are as follows:—

THE FOLLOWERS:—		£ s. d.		£ s. d.			
Royal College of Surgeons of England ...	52	10	0	Dr. Alex. Stuart ...	10	10	0
Dr. W. E. de Korte ...	3	3	0	Mr. C. F. Hawkins ...	1	1	0
Dr. J. Mitchell Wilson ...	1	1	0	Dr. Morgan Richey ...	2	2	0
Dr. P. J. Freyer ...	5	5	0	"Quattuor" ...	0	10	0
Dr. G. E. Haslip ...	3	3	0	Mr. M. Cashmore ...	1	1	0
Dr. Porter ...	0	10	6	Salford Division, B.M.A. (per Dr. J. P. Elias, Hon. Sec.)—			
Dr. C. M. Pilcher (per Dr. Tuxford, Boston)	1	1	0	Dr. P. Benington ...	1	1	0
Dr. de Havilland Hall (second donation)	2	0	0	Dr. J. Bradley ...	1	1	0
Mr. Lawford Knaggs ...	5	0	0	Dr. Davie ...	1	1	0
Mr. H. Elwin Harris ...	2	2	0	Dr. Dobbs ...	0	10	0
Dr. Alfred Mantle ...	3	3	0	Dr. J. P. Elias ...	1	1	0
W. H. Quarrell, Esq. ...	1	0	0	Dr. S. B. Haynes ...	0	10	0
Dr. Margaret Orange ...	0	10	0	Dr. F. Mercer ...	1	1	0
Mr. A. Wight ...	1	1	0	Dr. James Morrow ...	1	0	0
Dr. Clive Riviere ...	2	2	0	Dr. Pilkington ...	2	2	0
Dr. D. Fogarty ...	1	1	0	Dr. E. T. Scowby ...	0	10	6
Surg. B. Bradburn, R.N. Dr. George Mac-	1	1	0	Dr. W. J. Sprott ...	1	1	0
Donald ...	1	1	0	Dr. J. P. Williams ...	1	1	0
Mr. H. A. Barford ...	2	2	0	Messrs. Curtis and Co. ...	2	2	0
Dr. Waterhouse ...	3	0	0	Mr. Albert Lucas ...	2	2	0
Mr. Alfred Winkfield ...	5	5	0	Mr. J. Need ...	1	0	0
				Dr. H. Darwin Hey ...	1	1	0
				Mr. C. W. O'Brien ...	5	5	0

	£	s.	d.
Birmingham Local Committee (per Dr. Robert Saundby)—			
Professor Gilbert	10	10	0
Barling			
Mr. Christopher Martin	5	5	0
Mr. J. T. Hewetson	5	5	0
Dr. Purslow	5	0	0
Professor Haslam	3	3	0
Mr. Leonard Gamgee	2	2	0
Dr. Lilley	2	2	0
Dr. W. T. Lydall	2	2	0
Dr. Leonard Hackey	1	1	0
Dr. Thomas Nelson	1	0	0
Mr. Arthur Oakes	0	10	6
Dr. T. S. Short	5	5	0
Dr. T. M. Tibbits	3	3	0
Mr. T. B. Ward	2	2	0
Mr. Frank Barnes	2	2	0
Dr. Mary Sturge	2	2	0
Dr. C. W. Suckling	2	2	0
Mr. G. P. Mills	2	2	0
Mr. J. F. Stockwell	2	2	0
Dr. William Gordon	2	2	0
Dr. John Robertson	2	2	0
Dr. W. A. Morris	1	1	0
Dr. Alice Maclean	1	1	0
Dr. Hailty Burn	1	1	0
Mr. Bertram Lloyd	1	1	0
Dr. George St. Johnston... ..	1	1	0
Mr. Gilbert Smith... ..	1	1	0
Dr. Smallwood			
Savage	1	1	0
Anonymous	1	0	0
Dr. E. Watt	1	1	0
Dr. Marion S. Linton	5	0	0
Dr. J. K. Jones	1	1	0
Dr. Richard Ainsworth	2	2	0
Dr. George E. Percy	5	0	0
Dr. Thomas Wilson	3	3	0
Dr. William Glaister	2	0	0
Dr. W. B. Drummond... ..	3	5	0
Warrington Branch of B.M.A. (per Dr. T. A. Murray)—			
Dr. R. Kennon	0	10	0
Dr. J. Bennett... ..	0	10	0
Dr. Henry Langdale	0	10	0
Dr. Lindsay	0	10	0
Dr. G. Binns	0	10	0
Dr. G. T. Schofield	0	10	0
Dr. J. B. Naden	0	10	0
Dr. A. J. Hutton	0	10	0
Dr. J. D. Liston	0	10	0
Dr. E. J. Geary	0	10	0
Dr. F. R. Seager	0	10	0
Dr. Arthur Anderson	0	10	0
Dr. T. U. Mercer	0	10	0
Dr. O. H. Edwards	0	10	0
Dr. F. J. Breakell	0	10	0
Dr. E. E. Bowden	0	10	0
Dr. J. S. Manson	0	10	0
Dr. Ian Ogilvie	0	10	0
Dr. Hodgkinson	0	10	0
Dr. C. Hutchinson	0	10	0
Dr. G. H. Joseph	0	10	0
Dr. D. Ferguson	0	10	0
Dr. T. A. Murray	0	10	0

West Suffolk Division, B.M.A. (per Dr. B. E. A. Batt)—			
Subscriptions from Doctors in West Suffolk	23	16	0
Collected by Doctors in West Suffolk ...	5	1	0
Boxford Parish Church, Christmas Day Collection ...	5	0	0
Dr. E. W. Ainley Walker	1	1	0
Dr. James Hewlett ...	2	2	0

Subscriptions to the Fund should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited, and sent to Dr. H. A. Des Vœux, 14, Buckingham-gate, London, S.W.

THIRD LIST OF SUBSCRIBERS IN IRELAND.

Amount previously acknowledged ... £675 5s.

	£	s.	d.		£	s.	d.
Michael H. Aiken ...	1	1	0	D. J. Coffey, P. Univ.			
Anon ...	0	10	0	Coll.	10	10	0
A. W. W. Baker ...	2	2	0	Th. Coulter ...	1	0	0
G. D. Beggs ...	1	1	0	D. Crowley ...	1	0	0
J. Brennan ...	0	10	0	J. C. T. Day ...	2	2	0
Fenwick Carre ...	2	2	0	A. F. Dixon ...	0	10	0
S. L. Cleland ...	0	10	6	J. A. Donaghy ...	1	0	0
M. G. Cooper ...	0	10	6	H. H. S. Dorman ...	1	0	0

	£ s. d.		£ s. d.
G. N. Dunn	1 0 0	R. C. B. Maunsell ...	2 2 0
P. J. Dunning... ..	1 1 0	J. R. Middleton ...	1 1 0
Mrs. John Dunville ...	3 0 0	T. U. Moffitt ...	1 1 0
E. P. Eustace	1 1 0	T. K. Mulcahy... ..	1 1 0
J. F. Fagan	1 1 0	C. J. O'Connor... ..	1 0 0
A. T. Ferrall	0 10 0	T. O'Donnell	1 1 0
L. P. J. Finegan	2 2 0	F. G. O'Donohoe ...	1 0 0
W. H. Fitzmaurice ...	0 10 0	W. D. O'Kelly... ..	1 1 0
H. B. Fleming... ..	3 3 0	J. W. Oliver	1 0 0
W. J. Galbraith	1 1 0	G. Peacocke	2 2 0
A. S. Goff	1 1 0	J. S. Pegum	1 0 0
J. Gordon	1 1 0	Charles Pentland ...	1 1 0
A. Greene	2 2 0	Louis Perrin	1 0 0
K. R. C. Hallows	1 1 0	Gardner Robb	3 3 0
M. Halpenny	1 0 0	Major J. J. Robb, I.M.S.	1 1 0
T. Hennessy	1 0 0	Miss L. Rowlette ...	0 10 0
W. H. Howe	1 1 0	S. Scanlan... ..	1 0 0
Hoyteand Son, Ph.C. ...	1 1 0	Sir Wm. J. Smyly... ..	10 10 0
Irish Branch, British		Brice Smyth	3 3 0
Dental Association ...	10 10 0	M. Brice Smyth	2 2 0
S. T. Irwin	2 2 0	R. Spence	0 10 6
M. W. Kelly	0 10 0	B. H. Steede	1 1 0
F. W. Kennedy	2 2 0	W. C. Stevenson ...	2 2 0
J. Kilpatrick	1 1 0	A. G. Stewart	1 0 0
J. Laird	2 2 0	J. C. Sugars	1 1 0
C. L. Lapper	1 1 0	P. D. Sullivan... ..	1 1 0
Horace Law	5 5 0	George Taylor... ..	1 1 0
J. J. Long... ..	1 7 0	Mather Thomson ...	1 1 0
J. W. Loughheed	1 1 0	W. H. Thompson ...	3 3 0
E. Lyons	0 10 0	Vincent Tighe... ..	2 0 0
J. McBirney and Co. ...	1 1 0	H. Todd, Ph.C.	1 0 0
P. MacCarthy... ..	3 0 0	J. Wallace	1 1 0
G. MacManus	0 7 6	D. M. Watson, P., P.S.I.	3 3 0
G. U. Macnamara	1 0 0	Herbert Webb	1 1 0
Mrs. W. D. Martin... ..	1 1 0	P. Wright	0 10 0

In the second list published in THE LANCET on Dec. 19th, p. 1441, for "Edward Murphy" there should be read "Edmond Murphy."

Subscriptions to the Irish Fund should be sent to the Royal College of Physicians of Ireland addressed to Dr. T. P. C. Kirkpatrick, Registrar of the College, and Dr. C. M. Benson, secretary of the Royal College of Surgeons in Ireland, who are acting as honorary secretaries and treasurers to the Fund.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments, &c., kindly contributed by the following gentlemen since the publication of the last list:—

Dr. Hugh R. Smith, South Hampstead, N.W.; Mr. J. D. Staple, Bristol; Dr. W. R. Reith, Erdington, Birmingham; and Dr. Samuel Davidson, Kelso.

THE Governor of Mauritius, in a telegram to the Secretary of State for the Colonies, received at the Colonial Office on Jan. 8th, states that six cases of plague were reported during the past week, and the number of deaths was six.

METROPOLITAN WATER BOARD AND MEDICAL ATTENDANCE.—At the last meeting of this Board, held on Jan. 8th, the works and stores committee submitted a report reminding the Board of its decision to provide gratuitous medical attendance for each workman excepted from the provisions of the National Insurance Act, 1911, and to pay each district medical officer appointed by the Board at the rate of 10s. per annum in respect of each workman placed on his panel, subject to the approval of the committee, such fee to include attendance, medicine, and the provision of all certificates and reports desired by the Board. The Board appointed 84 district medical officers, and as there was reason to be satisfied with the working of the arrangement the committee reported that they had decided to reappoint the whole of the district medical officers. One officer had resigned his appointment, and in his place Mr. Robert Capes was appointed. The reappointments, as in the first instance, were for 12 months only, as from Jan. 1st, in order to allow of the whole matter being brought automatically under annual review. The regulations governing the scheme had been confirmed by the committee subject to the amendment of Regulation 6, which had been altered to provide that a district medical officer who examined an employee and considered him unfit for duty must forward his certificate to the district engineer within 24 hours of the examination.

The War.

RETURN OF MEDICAL PRISONERS OF WAR.

It is announced that five released medical prisoners of war have arrived this week in London from Germany via Holland. Three are officers of the Royal Army Medical Corps who were captured whilst tending British wounded, and the other two are civilian surgeons attached to the British Red Cross Society who were captured while tending Belgian wounded under the Belgian Red Cross. Their names are as follows: Captain C. T. Edmunds, R.A.M.C., Captain E. S. B. Hamilton, R.A.M.C., Lieutenant W. S. Danks, R.A.M.C., and Dr. L. J. Austin and Dr. A. R. Elliott, temporarily attached to the 1st Belgian Red Cross Unit. Graphic accounts of their experiences have appeared in various newspapers.

MEDICO-MILITARY PAPERS.

An interesting article on "Frost-bite" appears in another column this week from the pen of Mr. A. W. Mayo-Robson, who has had frequent opportunities of observing this condition in soldiers returned from the front. We also print communications of medico-military interest from Mr. J. Jackson Clarke, Mr. F. Newland-Pedley, and Mr. C. F. Constant.

SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.

A meeting of the Scottish Medical Service Emergency Committee was held on Jan. 9th in the Royal College of Physicians of Edinburgh. There were present the President of the Royal College of Physicians, the President of the Royal College of Surgeons, the Dean of the Faculty of Medicine, Aberdeen University, Dr. J. R. Hamilton (Hawick), Dr. J. R. Currie (Edinburgh), Dr. J. Adams (Glasgow), Dr. J. Stevens (Edinburgh), Dr. G. C. Anderson (Methil), and Dr. Norman Walker (Convener). Sir Donald MacAlister was present by invitation.

The committee considered a draft statement which had been prepared by the subcommittee appointed at the last meeting, and approved of it in the following terms:—

Statement by the Committee.

From information in its possession the Scottish Medical Service Emergency Committee has reason to believe that some advice on the general principles which should be followed in making arrangements for the carrying on of the practices of those members of the profession who are serving with the King's Forces would be welcome. The available supply of locum tenents is so small that those whose duty keeps them at home must be depended upon to do the work of the absentee. The Committee recognise that in many, perhaps most, cases there are special circumstances with which it is not possible to deal in a general way. There are, however, certain broad principles of equity which are generally applicable. The man who is with the forces has the stimulus of fresh and interesting work, and he has the satisfaction and honour of directly serving his country. On the other hand, he may imperil the position he has established perhaps after many years of hard work. The man who remains to do the necessary work at home has a more prosaic duty. He has to take on a large addition to work which may already be considerable, and he has to do this without the prospect of its being of any lasting benefit to him, for it is the essence of these arrangements that they are only "for the period of the war," and that the absentee when he returns shall find his practice as nearly as

possible intact. Bearing these facts in mind, and further, that although the man who is absent is receiving pay and allowances he is nevertheless bound to submit to, it may be, considerable loss of practice, the Committee suggest the following arrangements for three classes of practice.

Class 1.—Large towns where the question of mileage is not a very important consideration. Here it is suggested that an equal division of the remuneration should be agreed upon, this to apply both to private and insurance practice.

Class 2.—Towns with a considerable population but with a large amount of country work, necessarily involving the question of travelling expenses. It may be possible to ascertain these with more or less exactness, but as a general rule probably a division of all remuneration on the basis of three-eighths to the absentee and five-eighths to the man who is doing all the work and paying all the expenses is the nearest to equity.

Class 3.—Smaller centres or single-practice areas where the question of travelling expenses and consumption of time becomes still more important. (It is not desirable that a man should undertake the duties of a practice whose centre is perhaps ten miles from his own and the committee will do their utmost to provide locums in such cases. In such possibly a fractionally larger proportion should be allotted to the man who is doing the work.)

It should be noted with regard to the three classes of practice that the difference between, say, a town practice (Class 1) on the one hand, and a town and country practice (Class 2) on the other, is not entirely one of geographical situation. Practices in large cities will in general offer no difficulty. They are town practices pure and simple. For practices in towns of moderate size, however, much will depend on the character of the town. In industrial burghs many practices will suitably be classed as town practices (Class 1); while in a market town of the same population all practices will probably be of the town and country class (Class 2). In the same town again some practices will belong to Class 1 and others to Class 2. Lastly, in many small towns where the bulk of the work lies in the surrounding country the town element may be practically non-existent, and the practice would fairly be counted in the country class (Class 3). Consideration of the facts and of local conditions can alone determine the correct point of view in doubtful cases.

The foregoing considerations are thought to be applicable both to private and insurance practice, including under private practice all fees for medical attendance, operations, midwifery, and the like, and under insurance practice all capitation fees, mileage, and dispensing allowances, and other charges if any. The sum total of such amounts would be divided between absentee and deputy in the proportion of half and half, three-eighths and five-eighths, and one-quarter and three-quarters, according as the practice falls under Class 1, Class 2, or Class 3. In private practice the treatment of cash payments will be simple. As regards the rendering of accounts for work on behalf of absentees, these should be sent out by the deputy at the same time as he sends out his own, and it is suggested that they should be sent by Dr. A on behalf of Dr. B, "absent on duty with the King's Forces." The committee are confident that in insurance practice no deputy acting on behalf of a practitioner absent on war service will wittingly endeavour to secure the transfer of the absentee's patients to his own list. It is not necessary for a transfer to be made in order that attendance may be given. By the terms of the existing practitioners' agreements the position of the deputy is recognised and provision is made for his employment. In certain cases, however, insured persons on the lists of absentee doctors may themselves have already taken the initiative with a view to transfer. They may have given due notice of their desire to change their doctor. It appears that having done so they are at liberty to make a fresh choice, and that if they fail to be accepted they have the right to be assigned to a practitioner on the panel. It seems to the committee that it would be a proper course for the practitioner to whom such patients apply to accept them "in trust for the absentee," sharing the capitation and other allowances on the principles above proposed, and giving the patient the opportunity of being transferred back to his own doctor's list immediately on the latter's return from active service. It is necessary to recognise that

proposed transfers may in some cases have nothing to do with the war. Such applications must be considered on their merits, and the decision will often be difficult. In any case of uncertainty the deputy will no doubt lean to generosity and accept the patient in trust for his absent colleague.

It was agreed that this statement should be sent for publication to the medical journals, and that it should be printed as a circular, copies of which can be had on application to the Convener at the Royal College of Physicians, Edinburgh. The committee expressed its satisfaction with the terms of the Director-General's circular, and the Convener was directed to convey its thanks to Sir Alfred Keogh, Director-General of the Army Medical Department. Several communications with reference to it had been received, and the committee expressed the hope that full advantage would be taken of this provision, and that even if the individual himself was not benefited by an exchange he would facilitate it in the interests of his colleagues and of the public.

Reference was made at the meeting to the Order in Council applying Part II. of the Medical Act, 1886, to Belgium, the outcome of which might be that Belgian doctors can legitimately practise in this country.

VOLUNTARY HOSPITALS AND WOUNDED SOLDIERS.

The Council of the British Hospitals Association, 14, Victoria-street, Westminster, S.W., have had under consideration the varying conditions under which the voluntary hospitals throughout Great Britain are receiving wounded soldiers for treatment. They point out that arrangements which the War Office has made with these institutions as to payment vary considerably; for instance, few, if any, of the hospitals in London have asked for any payment from the Government, whilst most of the provincial hospitals expect to be paid at rates which vary from 2s. to 4s. per patient per day. In these circumstances the Council are inviting the secretaries of voluntary hospitals to elicit the views of their committees as to whether an application should be made to the War Office to deal upon the basis of a uniform scale of payment with all the voluntary hospitals in which payment is desired. They understand that some such arrangement has been made in reference to the private hospitals provided by the British Red Cross Society and other similar organisations. The Council have also had under consideration the question as to whether an application should be made to the Inland Revenue authorities to remit the duty on rectified spirit used in hospitals in the making of tinctures, galenicals, &c. This matter has been referred to a small committee for further consideration and inquiry.

THE BRITISH RED CROSS SOCIETY.—In its summary of work accomplished during the week ending Jan. 9th the British Red Cross Society states that the number of auxiliary home hospitals accepted by the War Office to date is 675, containing beds for 18,782, including 364 beds accepted during the past week. The following additional ambulance cars have been despatched: 25 ambulances to the British Ambulance Committee (French Red Cross), 11 ambulances, 1 lorry, and 1 motor cyclist to Boulogne, 1 ambulance and 1 soup kitchen to Dunkirk, 1 ambulance to Havre, and 2 to places in England. At the Netley Red Cross Hospital there have been during the week 231 British and 239 Indian sick and wounded. Two cases of tetanus have recovered and have been removed from isolation. Two concerts have been given during the week,

and the members of the D'Oyley Carte Company playing at Southampton gave an entertainment.

The total number of cases of stores sent abroad during the week was 479; of these, 272 were despatched to Boulogne, 86 to Calais, and 67 to Havre, the balance representing small quantities sent to Dieppe, Wimereux, Dinant, and Dunkirk. Seventy hospitals in this country were supplied with 379 cases of stores. A large quantity of stores have been purchased to be sent out to Serbia and Montenegro. The hospital ship *Queen Alexandra* has been busy conveying wounded from Dunkirk to Boulogne, and is now engaged in transporting stores.

BRIGHTON MILITARY HOSPITALS: VISIT OF THE KING AND QUEEN.—Their Majesties the King and Queen paid a visit to Brighton on Saturday, Jan. 9th, and made a tour of the several military hospitals which have already been established there. Their Majesties' stay only lasted five hours in all, but in that short time they saw considerably over 2000 sick and wounded of the British and Indian Expeditionary Force, chatted with a great number of them, and imparted their sympathy and hopeful comfort. The Indians are quartered at the Royal Pavilion and at a secondary school in the town, and at the former place, noted for its Oriental architecture, although there was no formal ceremony, the King expressed to the mayor and corporation his pleasure that the Royal Pavilion had been given up for the reception of his Indian warriors, adding, "It is not only these beautiful surroundings which the Indians will appreciate, but this lovely air is certain to help considerably in building them up again." The Royal inspection of the Indian General Hospital, as the Pavilion has been named, lasted one hour. There were many very touching bedside scenes. Their Majesties were filled with pity when in some cases Colonel Niel Campbell, the chief administrator, explained (where the patients were unable to do so for themselves) their battle record and the nature of their injuries. But their Majesties' purpose was to hearten and console the wounded, and generally throughout their visit they maintained a cheerful manner, inspiring hope and a bright future on all sides. Sir Walter Lawrence, the War Office Commissioner, accompanied their Majesties during the tour, and he presented to the King and Queen Colonel Channer, Major Langston, and Major Waters, prominent members of the Indian Medical Service. Another hour was spent at the secondary school, an annexe of the Indian General Hospital, where Colonel Sweeney is in charge, and after lunching with the Hon. Sir Sidney Greville at Hove, their Majesties motored to the Second Eastern General Hospital in Dyke-road, where there are about 800 British and Belgian wounded soldiers. The administrators of the hospital, Lieutenant-Colonel Rooth, Captain Walker, and Lieutenant Ross, received the Royal visitors, and all the members of the medical staff were in attendance. The King and Queen next visited St. Mark's schools at Kemp Town and the Howard Home near by, two more military hospitals, and Mr. John Howard, the generous donor of the institution bearing his name, was presented to the King and Queen and personally thanked for a gift of such great value. Unfortunately, time did not permit of a visit being paid to the Royal Sussex County Hospital, where a good many wounded soldiers are being treated. Everywhere their Majesties went they expressed not in a mere form of words their appreciation of all that they had seen and all that was being done for their wounded soldiers, and those who accompanied their Majesties from bed to bed can testify to the King and Queen's sympathy with their soldiers, showing how real and personal is the interest they are taking in the wounded.

A MOTOR SURGICAL AND X RAY VAN.—The January issue of *Cooper's Vehicle Journal* contains a full description with coloured plate and working drawing of a combined operating theatre and X ray wagon on a 5-ton Dennis chassis for use as near as possible to actual military operations, which has been devised by Sir William Collins with the help of the staff of that periodical. The object of this collaboration was to harmonise in a practical fashion both medical and coachmaker's requirements. The reasons for selecting this particular type of chassis are given, but it is added that whatever type is chosen it should have an engine-driven lighting dynamo and lighting controls, while the suggestion is made that the theatre should be warmed

by superheated steam generated by a burner suited for using petrol vapour or other fuel. The body, which is arranged to carry at least four persons besides the driver, is divided into three sections: the front part for the driver, the middle part a light-proof X ray room, 5 ft. long, separated by sliding doors from the largest compartment, which is the actual theatre, 9 ft. 6 in. in length. In setting out the theatre Mr. G. H. Colt's brochure entitled "A Portable Operation Theatre" has been followed with much advantage. So far as can be judged from studying the plans and descriptions, a very compact and workmanlike travelling theatre and X ray room has been designed. One criticism suggests itself. It is a question whether the presence of such an allurement might not cause many operations to be done under temporary conditions that might more wisely be postponed till the patient could be sent back to a more permanent establishment. That, however, is hardly a criticism of the van itself, and there will always be a residuum of cases in which promptitude in operating will outweigh all considerations tending towards postponement.

Surgeon-General Sir Arthur Sloggett, K.C.B., Director-General, Army Medical Service, Overseas, accompanied by a staff officer, recently inspected H.S.H. the Prince of Monaco's model convalescent home at Monte Carlo for sick and wounded officers of British nationality. Several patients have arrived at the home, which is in full working order.

THE MEDICAL LITERATURE OF WAR.—A correspondent writes:—"Medical, nursing, and ambulance work in modern warfare has a literature of its own, which is swollen considerably after each campaign. At least 25 volumes have been published relating to this aspect of the South African War; they range from official reports and hospital records to the memoranda of individual experiences. This considerable list, however, is far outdone by the accumulation of medical literature which resulted from the war between France and Prussia in 1870 and 1871. Within 12 months of the cessation of hostilities more than 30 volumes containing in one form or another a medical history of the war had been published in the two lately belligerent countries. The complete bibliography of the war, which itself fills a volume, shows that some 45 works in German and some 30 in French have been written exclusively around the experiences of the surgeons with the respective armies, the equipment and routine of the field hospitals, and the medical and ambulance service in the siege of Paris. The works range from brochures, priced at a franc or two, or a few marks, up to voluminous and expensive treatises, these latter more especially from German pens. Even in the 'eighties' books on the subject were still coming at intervals from the French and German presses, and it was not until 1886 that there appeared the last of the eight volumes of the 'Sanitäts-Bericht über die Deutschen Heere im Kriege gegen Frankreich' from the Prussian War Department. The French contributions are lighter, but generally they are more intimate and vivacious. 'Le Livret du Docteur,' by Dr. A. Flammarion, Chevalier of the Legion of Honour, for instance, is really a loosely strung diary of the author's experiences from Sedan to Paris, and while he spares us nothing in his description of the horrible and the bizarre, he lightens the narrative with touches of gaiety. The principal English contribution to the medical literature of the Franco-Prussian War was in the form of the notes and recollections of Sir William MacCormac, which were published also in French and German. In the United States the medical literature of war seems to be much slighter in character than in Europe. Doubtless there were many ephemeral publications of the kind issued immediately after the Civil War, but a study of the list of printed books in the United States in 1912 only brought to light half a dozen works which recorded the nursing and surgical experiences of the war between North and South; while only one work, apparently, is extant dealing with this aspect of the Spanish-American struggle."

NEWCASTLE PRACTITIONERS' WAR GIFT: PRESENTATION OF A MOTOR AMBULANCE BY NEWCASTLE MEDICAL MEN.—On Jan. 8th at the Royal Victoria Infirmary, Newcastle-on-Tyne, a motor ambulance purchased by the medical men of the locality was formally presented to the First Northern General Hospital for service either locally or

abroad during the war. The car is of the British Red Cross standard dimensions and was built entirely by Messrs. Argylls, Limited, at Alexandria, Scotland. The chassis is one of that firm's 15-30 h.p. models, with sleeve valve engine and four-wheel diagonal braking system. The tyres are extra large, and these, with a silent rear axle worm, convey smooth running powers, while the comfort of the passengers is further ensured by rear three-quarter elliptic springs and the use of Houdaille shock absorbers, which are attached to both front and rear axles. The body consists of a wood frame, with canvas detachable curtains, and the ambulance accommodates four stretchers running on guides. The body is so arranged that it can easily be made to accommodate comfortably 12 convalescents. An electric roof-lamp facilitates night work. The executive committee consisted of Professor Rutherford Morison (chairman), Dr. James Hudson (vice-chairman), Mr. David Ranken (honorary secretary), Sir George Hare Philipson, Sir Thomas Oliver, Dr. David Drummond, Dr. W. L. Ruxton, Dr. Ranken Lyle, Dr. S. Whillis, Dr. G. H. Hume, sen., Mr. F. Page, Dr. C. J. Gibb, Dr. E. F. Pratt, Dr. R. Dagger, Dr. J. D. Wardale, Dr. Russell, Dr. W. S. Fraser, Dr. A. C. Burnell, Dr. James Don, Dr. Ethel Williams, Dr. J. T. Dunlop, Dr. J. J. Campbell, Dr. A. Campbell, and Dr. H. Ll. Rutter. The subscribers numbered 117. In presenting the ambulance Professor Morison said that great pains had been taken in the selection of the car after a most careful investigation of the conditions which such a car would have to meet. Colonel Gowans, commanding the First Northern General Hospital, in accepting the car, thanked the subscribers and paid a tribute to the judgment of the committee on their choice of a car, and hoped that at the end of the war it would be returned little the worse for wear for the use of the civilian sick of the district.

THE DUCHESS OF WESTMINSTER'S HOSPITAL.—

The following is an extract from a letter received by a correspondent from one serving in the Duchess of Westminster's War Hospital:—"Le Touquet par Etaples, well known for its first-rate golf links, will in future be notable for the excellent war hospital which was organised shortly after the commencement of hostilities. The patients are at the Casino, which is an ideal place for a hospital, and the doctors and nurses are in the Hôtel des Anglais; the use of both buildings has been given free. The staff consists of a military commandant, 4 surgeons, 2 physicians, an anaesthetist, an X ray officer, 4 dressers, 30 nurses, and 30 orderlies. There are 270 beds; up to the end of 1914 about 800 patients had been admitted, chiefly cases of shell and bullet wounds and so-called 'frost-bite,' which is a misnomer. These are a general inflammation of the feet due to long-continued standing in wet boots in the rain-sodden trenches, producing discolouration and associated with anaesthesia or hyperaesthesia. The patients take a long time to recover; one of them was so bad that both feet were gangrenous with a definite line of demarcation, and were amputated. He was a German prisoner. There have been three cases of gas gangrene, one of whom recovered. By the irony of fate he was a German. We have had three cases of tetanus, two of whom died. With regard to anti-tetanic serum, there seems little evidence as to its value, but everyone agrees that it ought to be given, as it does no harm; but with typhoid the case is very different. At Wimereux 80 per cent. of the cases had not been inoculated; of the remaining 20 per cent. nearly all were infected immediately after the inoculation—i.e., during the negative phase. Two things forcibly strike me here. First, the remarkable recoveries considering the horribly septic condition of many of the wounds. There is no doubt that the more conservative one's surgery the more successful the results. The number of aseptic cases is very small. Secondly, the happy way and cheerful endurance with which the men face their sufferings. I have not heard a complaint or a groan from a patient since I have been here. There are 'grouzers' in almost every community, but, thank heaven, they are not to be found here."

THE DRUG HABIT AND MOBILISATION IN FRANCE.

—Our Paris Correspondent writes: "Dr. Marcel Briand has lately been investigating the behaviour of the morphine takers in the French army. Generally speaking, while a few have not broken away from their demoralising habit,

many, being unable to obtain the drug, have perforce been compelled to become demorphinised and have thus been cured, but not without considerable suffering. The subjection to army discipline has also had a bracing moral effect, while in civil life the morphinomaniacs seek one another out and encourage each other in their vice. There are at least two such now in the army who, coming from the same environment and locality, where they frequently associated in their habits and in their search for supplies of the drug, on mobilisation, the one as an officer, the other in the ranks in the same regiment, now deceive one another as to their state by each pretending to have been cured long since, and while they still continue taking injections secretly, are rapidly lessening the dose to escape as quickly as possible from their tyrannical need, which becomes daily more hateful to them. Their regiment has not yet been under fire, but there is every reason to hope that when this occurs the two men will be quite capable of adequately discharging their duty, which they could not have done a few weeks ago."

ULSTER VOLUNTEER FORCE HOSPITAL.—This hospital, which has been established in the Exhibition Hall, Belfast (granted by the Belfast City Corporation), for the reception of wounded soldiers and sailors, was opened on Jan. 8th by Lady Carson. The Exhibition Hall has been transformed into a hospital with 80 beds, and 20 more beds have been provided at the Samaritan Hospital for Women (which for some time has been closed), where it is proposed to treat the more serious cases. A neighbouring house (No. 1, College Park East) has been generously placed at the disposal of the committee for use as a nurses' home. The hospital is being lent to the War Office by the Ulster Volunteer Force, who will retain the ownership and be able to use it in whatever way they may deem proper after the war has been brought to a termination. A large medical and nursing staff have been appointed.

M.B. DEGREE EXAMINATION AT BELFAST.—

A special examination for the M.B. degree was held in connexion with the Queen's University of Belfast last week, when 21 candidates were admitted to the degree. A large number of these propose entering the Army Medical Service. The degrees were conferred on Monday, Jan. 11th.

Obituary.

SIR ROBERT MICHAEL SIMON, B.A., M.D. CANTAB.,
M.D. BIRM., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM;
PROFESSOR OF THERAPEUTICS IN THE UNIVERSITY
OF BIRMINGHAM.

WITHIN a short period the medical profession of Birmingham has mourned the loss by death of three of its leading members, and some weeks ago a further loss was sustained by the death of Sir Robert Simon after a short illness.

Born in 1850 Sir Robert Simon was a native of Nottingham. He entered Caius College, Cambridge, and graduated M.B. in 1876 and M.D. two years later. He studied medicine at Guy's Hospital and in Berlin. At first he settled in Manchester, where for three years he was honorary physician to the St. Mary's Hospital for Women and Children. In 1879 he became a Member of the Royal College of Physicians and was appointed assistant physician to the General Hospital, Birmingham, taking the place of the late Dr. G. A. Gibson, who went to Edinburgh. On the retirement of Sir Walter Foster (afterwards Lord Ilkeston) in 1891 Sir Robert Simon was elected honorary physician to the hospital, which position he held until April, 1914. His distinguished services to this institution rendered during 35 years were recognised last October, when an illuminated album was presented to him and a diamond tiara to Lady Simon. An excellent portrait of Sir Robert Simon was at the same time presented

to be hung in the board room of the General Hospital. In the University of Birmingham he held for a short time the chair of Forensic Medicine, and for the last three years he was Professor of Therapeutics. Besides the General Hospital appointment he was physician to the General Dispensary, consulting physician to the Dental Hospital, the Tewkesbury Hospital, the Nuneaton Hospital, Lichfield Cottage Hospital, and the Sutton Coldfield Dispensary. He served a term as examiner in medicine at the University of Cambridge and as examiner in clinical medicine at the University of Birmingham. He had also held the offices of President of the Birmingham Branch of the British Medical Association and of the Birmingham Medical Benevolent Society. In 1910 he received the honour of knighthood in recognition of his professional position and of the services rendered to the city of Birmingham. For 15 years he was a magistrate of the county of Warwick, and more recently had been a justice of the peace for Birmingham. His contributions to medical literature were few, the most important being the chapter on the diseases of workers in brass and copper for Oliver's "Dangerous Trades." An earlier paper on "Brass-founders' Ague" had appeared in 1888. He was the author of "Lectures on the Treatment of Common Diseases of the Skin," based on his Ingleby lectures. Two papers on "Cardiolysis" were published recently.

Sir Robert Simon was a man of very considerable ability and possessed unusual clinical skill, which had gained for him a high reputation as a teacher and a large consulting practice in the Midlands. As a physician he possessed broad and philosophic views of disease, and had the power of seizing at once the essential features of a case. He was essentially a friendly man and easily won the confidence of his patients. He was a good-tempered colleague, considerate and helpful to his juniors. The post of his house physician was much sought after, and his old residents would acknowledge how much they owe to his clinical experience and skill, to his friendly banter, and to the sense of responsibility and initiative which he tried to inculcate in them. He had a great aptitude for games of skill; few were his equals at chess or bridge, and he was a good golfer. Three years ago he had severe Menière's disease, which he faced with great courage. Since then his health had not been very good, but it was hoped that the greater leisure resulting from his retirement from active hospital work would allow him to enjoy life for many years, and his death following a severe attack of influenza was a great shock to all his friends.

Sir Robert Simon married in 1887 Emily Maud, a daughter of the late Mr. W. H. Willans, of London and Seaton, who survives him with her daughter.

ERNEST WILSON STOKER, F.R.C.S. IREL.,

SURGEON TO OUT-PATIENTS, ST. PAUL'S HOSPITAL,
RED LION-SQUARE, W.C.

Dr. Wilson Stoker belonged to the well-known Irish family which has produced so many members of the medical profession. His father and grandfather were medical practitioners, and three out of four of his brothers follow the same calling. He received his medical education at the Royal College of Surgeons in Ireland, where he graduated in 1888, and subsequently took the Fellowship. He went through courses at Berlin and Vienna under Billoth and Pollitzer, and travelled extensively when a young man in various parts of the world. He then came

to London, and after holding the post of house surgeon at the Mount Vernon Hospital, settled in practice 17 years ago. He recently took the house of his cousin, Mr. George Stoker, C.M.G., in Hertford-street, Mayfair, and attained considerable success in practice. A personal friend writes: "He loved his profession, and refused, notwithstanding his failing health from diabetes, to take a long rest, and died in harness, as he always wished to do, after a few hours' illness from pneumonia. The strain of the war, bringing attendance upon Red Cross hospitals and work to be done for absent friends serving at the Front, in addition to his personal work, proved to be too much for his strength. He had been a prominent athlete, having played Rugby football for Ireland in 1888-90, besides being a well-known tennis player and a keen shot."

EDWARD IRWIN SCOTT, M.D. ST. AND., L.R.C.S. IREL., L.R.C.P. IREL.

Dr. Edward Irwin Scott has died at Brighton from angina pectoris at the age of 68 years. He was noted for his great thoughtfulness and kindness to all with whom he came in contact, rich and poor alike. Dr. Scott was formerly a member of the Hove town council, and was interested in local philanthropic societies as well as the National Society for the Prevention of Cruelty to Children and the Charity Organisation Society. He was medical officer of the Brighton and Hove Dispensary for 25 years, and was ex-president of the Irish Medical Schools and Graduates Association. He formerly practised at Swatow.

The funeral service was held at All Saints' Church, Hove, when there was a large congregation of friends and patients.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Conjoint Board held on Jan. 5th, 6th, 7th, and 8th the following candidates were approved in the subjects indicated:—

Chemistry and Physics.—Fanzi Fareed Abdullah, St. Mary's Hospital; William George Barnard, London Hospital; Percival Charles Collins, St. Bartholomew's Hospital; Ivor Joseph Corbett, Plymouth Science, Art, and Technical School; William Davies, University College, Cardiff; Frank Swinburne Drewe, M.A. Oxon., St. Thomas's Hospital; Chapple Gill-Carey, Guy's Hospital; Boris Abram Moishovich Gordon, South-Western Polytechnic and London Hospital; Frank Eric Harger, St. Bartholomew's Hospital; Norman Howard, Liverpool Technical School; John Stephen Moore, St. Thomas's Hospital; Adolphe Gladstone Millott Severn, Guy's Hospital; Yousif Ahmed Sunbul, Polytechnic Institute; Douglas Durrand Christian Thomson, London Hospital; and Jacob Eliza van der Merwe, Guy's Hospital.

Chemistry.—Frank Edward Edwards, Manchester University; Mamtaz Wali Mahomed Hassanally, King's College; Henry Alfred Connor Kite, Sheffield University; Clement Nicory and Ernest Algernon Sparks, St. Thomas's Hospital; and Alfred George Sykes, Sheffield University.

Physics.—Laurence Morrice Calvert, Cambridge University and St. Bartholomew's Hospital; Alfred Joseph Chiappa, Middlesex Hospital; Mohamed Ahmed El Dardiri, King's College; Arthur James Fenn, Birkbeck College; Alfred Foster, St. Bartholomew's Hospital; Wabba Girgis, St. Mary's Hospital; Kenneth Glaisby, Uppingham School; David Joseph Heritage Jones, St. Mary's Hospital; George Murphy, Birmingham University; Akinlawon Babatunde Olumuyiwa, St. Mary's Hospital; and Gladys Mary Thurlow Williams, University College, Cardiff.

Biology.—Yenny Abdel-Messiah, B.A., King's College; Fanzi Fareed Abdullah, St. Mary's Hospital; Jose Basileo Acuna, Guy's Hospital; Frederick Thomas Allen, St. Thomas's Hospital; George Wilfred Almeyda and William George Barnard, London Hospital; Charles Reginald Cade, Guy's Hospital; Alfred Joseph Chiappa, Middlesex Hospital; William Davies, University College, Cardiff; Arthur James Fenn, Birkbeck College; Edgar Thomas Flood, St. Mary's Hospital; Chapple Gill

Carey, Guy's Hospital; Wahba Girgis, St. Mary's Hospital; Boris Abram Molshovich Gordon, South-Western Polytechnic and London Hospital; Denis Paul Guilfoyle, St. Bartholomew's Hospital; William Rufus George Harris, London Hospital; Kenneth Charles Johnston Jones, St. Bartholomew's Hospital and Bedford School; John Joseph Miles MacDonnell, St. Thomas's Hospital; Charles Moffatt, Guy's Hospital; George Murphy, Birmingham University; Elizabeth O'Flynn, School of Medicine for Women; Arthur Arnold Osman and Adolphe Gladstone Millott Severn, Guy's Hospital; Yousif Ahmed Sunbul, King's College; Douglas Durrant Christian Thomson, London Hospital; Jacob Bliza van der Merwe and George William Wheldon, Guy's Hospital; and Frederick William Widgery, Royal Albert Memorial College.

At the Second Professional Examination in Anatomy and Physiology held on Jan. 7th, 8th, and 11th 51 candidates presented themselves, of whom 35 were approved and 16 were referred. The following is a list of the successful candidates:—

Eric Burn Andreae, London Hospital; Henry Hamilton Bailey, Durham University and London Hospital; James Reid Banks, University College; James Allan Berry, Guy's Hospital and Durham University; Kasargod Somanath Bhat, B.A. Madras, Madras University and St. Bartholomew's Hospital; Francis Caldecott and Oliver St. Leger Campion, Guy's Hospital; Milton Carrasco, Grant Medical College, Bombay; Hyman Maurice Cohen, M.D. Baltimore, Baltimore and Liverpool Universities; Bernard Stanley Collings and Thomas Morley Cunningham, University College; Henry Andrew Frokjar, Melbourne University and University College; Lawrence Gill, Guy's Hospital; Edwin Gabriel Harris and John Hollings, London Hospital; John Hope, Manchester University; Joseph Christopher Campbell Howe, Guy's Hospital; John Wilkinson Davis Hyde, University College; Ivy Keess, Grant Medical College, Bombay; Mohamed Elwan Abdel Latif, Cairo; Kenneth Alexander Ingleby Mackenzie, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; Puthiyaveethil Narayana Menon, University College; Hugh Morris-Jones, Glasgow and Liverpool Universities; Pirosha Dinsha Motivala, Grant Medical College, Bombay; William Percival Nelson, Birmingham University; Alice O'Reilly, L.M.S. Calcutta, Calcutta University; Geraint Arthur Pennant, University College, Cardiff, and Guy's Hospital; Frank Neon Reynolds and Alan Harvey Richardson, St. Thomas's Hospital; Edwin John Gostwycke Sargent, St. Mary's Hospital; Basil Lyndon Skeggs, St. Bartholomew's Hospital; Neville Hardcastle Smith, B.A. Cantab., Cambridge and Liverpool Universities; Iqbal Hosain Syed, Grant Medical College, Bombay; Arthur Stewart Westmorland, St. Mary's Hospital; and Shebsell Yablervitz, London Hospital.

CENTENARIANS.—Mrs. Mary McCann, who retained her faculties till she died, passed away on Jan. 9th in the Roman Catholic Home, Newry, on the 100th anniversary of her birthday.—Mrs. Lambert, of Edmonton, recently celebrated the 101st anniversary of her birthday.

THE SUPPLY OF THYMOL.—A shortage of this useful and powerful antiseptic has arisen owing to the fact that most of it was prepared from the raw material (ajowan seeds) by German makers. These seeds are supplied for the most part from India, and we learn that the Imperial Institute authorities are taking steps to bring British manufacturers into communication with the Indian exporters of the seed with the view of extracting the oil in this country.

THE SALE OF LAUDANUM.—At the January meeting of the Council of the Pharmaceutical Society the following was adopted:—

That the policy to be advocated by the Council in regard to the sale of laudanum should be that when "laudanum" is asked for the 1914 preparation should be supplied and the poison book signed; but where the 1898 preparation is demanded care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

RAINFALL IN THE NORTH OF IRELAND.—December, 1914, will long be remembered as the wettest month in Ulster for many years, while during it there was also an extraordinary prevalence of high winds, as well as a low average temperature. Thus, at the famous golfing centre, Newcastle, co. Down, there were 16 days on which rain fell, and the total amount was 7·44 inches. At Warrenpoint rain fell on 23 days in December to the extent of 8·93 inches, as against 2·63 inches in December, 1913. In the same district the total rainfall for 1914 was 37·44 inches, as against 41·11 inches in 1913. In Newcastle the total rainfall for last year was 38·94 inches. At Seaforde, co. Down, the rainfall during 1914 was 38·95 inches, as against 40·25 in 1913; at Letterkenny, co. Donegal, it was 46·33 inches; at Markee, co. Sligo, it was 46·58 inches; while at Carna, Connemara, in the west of Ireland, it was 49·10 inches. At Cashel, Tipperary, there were 235 days with rain.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Meeting of the House of Lords.

THE House of Lords met on three days last week. Several matters arising out of the war were discussed. An adjournment was then made until Feb. 2nd, on which date the House of Commons reassembles.

HOUSE OF LORDS.

THURSDAY, JAN. 7TH.

Gifts of Motor Ambulances.

LORD BALFOUR OF BURLEIGH asked His Majesty's Government whether it was the fact that with the consent of the War Office some motor ambulances had been provided by private benefaction for special brigades through the British Red Cross Association; whether, on such cars being landed in France, they had been taken possession of by the Army Service Corps and devoted to the general service of the Royal Army Medical Corps; and, if so, whether this course had the sanction and approval of the War Office. His lordship went on to say that the facts as given to him from a private source were these. Early in the war there was a great need for ambulance cars at the seat of military operations for the purpose of taking the wounded back to the base hospitals with as much speed as possible. The fact that the demand exceeded the supply was one on which he did not care to throw stress. He was told that this becoming known to the friends of some of the regiments concerned they got up subscriptions for providing ambulance cars for the special units in which they were interested. He was informed by Mr. Walter Long, whose son was in the Scots Greys, that the War Office was approached to get its consent that such a procedure in regard to this particular regiment should be adopted. The War Office stated that individual units could not be given this privilege, but it would give its consent if the car was sent for the service of a particular brigade. Accordingly the friends of the Scots Greys, the 12th Lancers, and the 20th Hussars, which made up one cavalry brigade, did provide ambulance motors for the service of that brigade. He was told that in no single case had a car reached its destination. He was informed that every condition laid down by the War Office had been complied with, and the cars were sent out to the British Red Cross Association. He was not speaking on behalf of that organisation, but on behalf of those who supplied the cars. Were the statements he had just made correct? If so, was it fair that the property of private persons, subscribed for under the sanction of the War Office for a definite purpose, should be taken from them and applied to other purposes?

The LORD CHANCELLOR replied that he had looked into the matter. A considerable number of motor ambulances had been provided by private benefactors, and in a great number of instances the donors had stipulated that the ambulance in question should be given to some particular unit or brigade. The answer to these stipulations had invariably been that so far as possible the donors' wishes would be carried out, but it must be distinctly understood that any such gifts could only be accepted on the condition that they were available for the general service of the army. Those ambulances which had been given for work with the Expeditionary Force had been so dispatched. It was obvious, however, that the circumstances and difficulties of maintaining an army in the field made the special earmarking of certain vehicles to certain units only a practical impossibility. A vehicle requiring only slight repairs must necessarily be replaced by an efficient one, and the damaged one when repaired must necessarily go into the general pool available for replacement wherever required. It came to this: that whilst an effort had been made to carry out the wishes of the donors the circumstances of the army made it impossible to carry them out in certain instances.

LORD BALFOUR OF BURLEIGH remarked that the names of the units were painted on the cars concerned, and no communication had been made to any of the donors that the cars had been taken for the service of the Army Medical Corps. He was informed that one of the cars had not been paid for, and the donor did not intend to do so until he got compensation.

Inoculation against Typhoid.

LORD TENTERDEN drew attention to the inoculation in His Majesty's Forces against typhoid; and asked His Majesty's Government for information as to whether inoculation was compulsory, and whether soldiers were involved in any penalties or disabilities if they refused to submit to inoculation. He said that pressure was being put on soldiers to be

inoculated, even in cases in which they entertained conscientious objections to the operation. Many cases had been brought to his notice where soldiers who refused had had their Christmas leave stopped. He had seen many letters from soldiers in which they protested against the exercise of this pressure. It was perfectly evident in spite of all official assurances in Parliament that inoculation was being made practically as compulsory as it could be.

The LORD CHANCELLOR replied that inoculation against enteric typhoid was not compulsory for any soldier. There were special dangers at the front to men who were not inoculated, and the medical authorities were convinced of the benefits of inoculation. Every effort was made to persuade men to be inoculated. The only circular issued on the subject was that dated Oct. 4th, 1914, and in it it was pointed out that this disease was a great danger on active service and that it was the duty of soldiers to guard against it; and if they did not do so they risked their chance of seeing active service because men who had adopted this precaution might be selected in their place. It came to this: that the medical authorities and the highest authorities were convinced that this inoculation was the very highest protection against enteric fever.

Appointments.

Successful applicants for vacancies. Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

- BARNES, HELEN P., M.B., B.S. Lond., has been appointed Resident Medical Officer at the Wolverhampton and Staffordshire General Hospital.
- HUDSON, ARTHUR CYRIL, M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Ophthalmic Surgeon in Charge of Out-patients at St. Thomas's Hospital.
- MACRAY, HELEN M. M., M.B., B.S. Lond., has been appointed House Surgeon at the Wolverhampton and Staffordshire General Hospital.
- MALLET, REFNA, M.R.C.S., L.R.C.P., has been appointed House Surgeon at the Wolverhampton and Staffordshire General Hospital.
- MITCHELL, A. PHILIP, M.D., Ch.M. Edin., F.R.C.S. Edin., has been appointed Temporary Assistant Surgeon at the Royal Hospital for Sick Children, Edinburgh.
- MORISON, D., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Tobermory District of the county of Argyll.
- PHILLIPS, LLEWELLYN POWELL, M.D. Cantab., F.R.C.P. Lond., F.R.C.S. Eng., has been appointed Physician-in-Ordinary to S.M. the Sultan of Egypt.
- REES, J. H., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Penarth District of the county of Glamorgan.
- WARBURTON, GILBERT B., M.B., Ch.M. Vict., F.R.C.S. Eng., has been appointed Temporary Honorary Surgeon to Ancoats Hospital, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

- ASHTON-UNDER-LYNE UNION WORKHOUSE.—Resident Assistant Medical Officer. Salary £150 per annum, with rations, laundry, and residence.
- BARNLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £120 per annum, with apartments, board, and laundry.
- BARNSTAPLE, NORTH DEVON INFIRMARY.—Female House Surgeon. Salary £100 per annum, with board, residence, and laundry.
- BARRY EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.
- BARRY URBAN DISTRICT COUNCIL ACCIDENT AND SURGICAL HOSPITAL.—House Surgeon. Salary £250 per annum.
- BETHNAL GREEN INFIRMARY, Cambridge-road, N.E.—Assistant Medical Officer. Salary at rate of £200 per annum, with apartments, board, and washing.
- BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.
- BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Senior and Junior House Surgeons. Salary £110 and £100 per annum respectively, with residence and board, &c.
- BIRMINGHAM AND MIDLAND HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Bath Row.—Physician to Out-patients.
- BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
- BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
- BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £160 per annum. SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. All with apartments, rations, laundry, and attendance.
- BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon and Third House Surgeon. Salary £150 and £130 per annum respectively, with apartments, board, and attendance.
- BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.
- BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.
- BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
- BRISTOL, COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.
- BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
- BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
- BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
- CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salary £100 and £90 per annum respectively, with board, lodging, and washing.
- CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
- CAPE TOWN, SOMERSET HOSPITAL.—Two Assistant Medical Officers, unmarried. Salary £200 per annum, with rations and quarters.
- CARDIFF, KING EDWARD VII.'S HOSPITAL.—Female House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £140 per annum, with board, laundry, and residence.
- CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salary £160 and £140 per annum respectively, with board, residence, and washing.
- COVENTRY, COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.
- CROYDON GENERAL HOSPITAL.—Senior House Surgeon. Salary £105 per annum, with residence, board, and laundry.
- DOUGLAS, ISLE OF MAN, NOBLE'S HOSPITAL.—Resident House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
- DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.
- ECCLES AND PATRICKROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.
- EXETER CITY ASYLUM.—Assistant Medical Superintendent. Salary £250 per annum, with apartments, board, laundry, &c.
- GLASGOW, GARTLOCH MENTAL HOSPITAL.—Assistant Medical Officer. Salary £200 per annum, with board, lodging, and laundry.
- GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
- GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, residence, and laundry.
- GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.
- GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.
- HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Junior Assistant Medical Officer. Salary £200 per annum, with rations, apartments, and attendance.
- HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.
- HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Two House Surgeons, unmarried, for six months. Salary £30, with board, residence, &c.
- HULL CITY ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.
- HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female House Surgeon and Female Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.
- LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.
- LEICESTER BOROUGH SANATORIUM AND TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £300 per annum.
- LEICESTERSHIRE EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
- LEWES, EAST SUSSEX COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £320 per annum.
- LIVERPOOL, BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officers. Salary £280 per annum, with apartments and usual resident allowances.
- LIVERPOOL, CITY OF.—Female Assistant Medical Officer. Salary £350 per annum.
- LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and House Surgeon for six months. Salary at rate of £60 per annum each, with board, residence, and laundry.
- LIVERPOOL STANLEY HOSPITAL.—House Surgeons and Physicians.
- LONDON HOMOEOPATHIC HOSPITAL, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Surgeon for Diseases of the Eye. Also Assistant Physician.
- LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum.
- MANCHESTER CORPORATION.—Two Assistant Tuberculosis Medical Officers. Salary £350 each per annum.
- MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
- MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £30 per annum, with residence, board, and washing.
- METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Two Assistant House Surgeons for six months. Salary at rate of £40 per annum, with board and washing.
- MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Surgeon Laryngologist.
- NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Temporary Junior House Physician. Salary £100 per annum, with board and residence.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Physician. Also House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

RHONDDA URBAN DISTRICT COUNCIL.—Two Temporary Assistant Medical Officers of Health and School Medical Officers. Salary £350 and £300 per annum respectively.

ROUSAY AND EGISLHAY, PARISH OF.—Resident Medical Officer. Salary £71 per annum, with free house (partly furnished) and garden.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Election to the Court of Examiners.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, washing, &c. Also Honorary Anaesthetist. Salary £21 per annum.

ST. MARY'S HOSPITAL, Paddington, W.—Resident Assistant Anaesthetist for six months. Salary at rate of £100 per annum, with board and residence.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SALOP COUNTY COUNCIL.—Temporary Tuberculosis Officer. Salary 7 guineas a week.

SHEFFIELD CITY HOSPITALS (INFECTIOUS DISEASES AND TUBERCULOSIS).—Assistant Medical Officer. Salary £180 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SIDSLAW SANATORIUM.—Resident Medical Officer. Salary £125 per annum.

SOUTHAMPTON ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

SOUTH SHIELDS UNION, HARTON POOR-LAW INSTITUTION.—Assistant Medical Officer. Salary £200 per annum.

STIRLING DISTRICT ASYLUM, Larbert, N.B.—Female Third Assistant Medical Officer. Salary £140 per annum, with board, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £40, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, washing, and attendance. Also Locum Tenens Assistant Medical Officer. Salary as arranged, with apartments, board, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anaesthetist. Salary £110 per annum, with board, residence, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST RIDING OF YORKSHIRE, CARDIGAN SANATORIUM, near Wakefield.—Assistant Medical Officer. Salary £250 per annum.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

WORKSOP VICTORIA HOSPITAL AND DISPENSARY.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, coal, light, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Paignton and at Brauton, in the county of Devon; and at Mountrath, in Queen's County.

LEATHART.—On Jan. 5th, at Gatestone-road, Upper Norwood, the wife of Percival W. Leathart, M.B., B.C., of a son.

RICKARD.—On Jan. 8th, at Hazelwood-terrace, Plymouth, the wife of Staff Surgeon C. R. Rickard, R.N., of a daughter (stillborn).

THURNELL.—On Jan. 7th, at Woodville-terrace, Gravesend, the wife of Herbert L. Thurnell, M.A., M.D., of a daughter.

MARRIAGES.

MCNEILL—DAYSON.—On Jan. 9th, at St. Peter's, Earley, Berkshire, Captain A. N. R. McNeill, R.A.M.C., to Nora, daughter of Mr. C. S. Davson, Chief Justice of Fiji, and Mrs. Davson.

NIXON—JOHNSON.—On Jan. 7th, at St. Wilfrid's Church, Harrogate, quietly on account of the war, by the Rev. Douglas Guy, Surgeon Horace Clulow Nixon, R.N., of Harrogate, youngest son of the late Benjamin Nixon and Mrs. Nixon, Ballington House, Leek, to Hilda de Angelis, younger daughter of Dr. and Mrs. T. Mason Johnson, The Gables, Harrogate.

RUFFMANN—GAYLORD.—On Jan. 6th, at St. Mary Magdalene's, Upper Tooting, Hermann H. Ruffmann, M.B., B.S., to Ada Millicent Parkinson, daughter of the late Mr. Percival Gaylord, of South Australia.

DEATHS.

DON.—On Jan. 11th, suddenly, at Sutherland-avenue, W., and of Braeside, Kingsdown, Dover, William Walton Don, M.D., aged 42 years.

HARRISON-SMITH.—On Jan. 4th, at Ramsgate, Horace Harrison-Smith, M.D., R.N., aged 90 years.

MCNAMARA.—On Jan. 9th, at Rosslyn, Blakesley-avenue, Faling, suddenly, Surgeon-General W. H. McNamara, C.B., C.M.G., late Army Medical Service.

PORTER.—On Jan. 7th, at Edith-road, W., Robert Ibbetson Porter, M.A. Oxon., L.R.C.P., M.R.C.S., aged 53 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

Surgical Materials and their Uses. By A. MacLennan, M.B., C.M. Glasg. Price 4s. 6d. net.

BAILLIÈRE, J. B., ET FILS, Paris.

Manuel de Prothèse Restauratrice Bucco-faciale et Traitement des Fractures des Maxillaires. Par P. Martinier et G. Lemerle, Professeurs à l'Ecole Dentaire de Paris. Pp. 360. Price 3 fr.

BAILLIÈRE, TINDALL, AND COX, London.

Practical Sanitary Science: A Handbook for the Public Health Laboratory. By David Sommerville, B.A., M.Sc., M.D., M.R.C.P. Lond., D.P.H. Camb., F.C.S. Second edition. Price 10s. 6d. net.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.

The Year Book of Open-Air Schools and Children's Sanatoria. Edited by T. N. Kelynack, M.D. Vol. I., 1915. Price 7s. 6d. net.

BLACK, ADAM AND CHARLES, London.

Writers' and Artists' Year Book. 1915. Price 1s. net.
Englishwoman's Year Book and Directory, 1915. Edited by G. E. Mitton. Price 2s. 6d. net.
Who's Who, 1915. Price 15s. net.

BLACKIE AND SON, London.

Studies in Questions Relating to Eye-training. By W. Phillips, M.A. Price 1s. 6d. net.

BRYAN COMPANY, THE R. L., Columbia, S.C.

Transactions of the National Association for the Study of Pellagra. Second Triennial Meeting at Columbia, October, 1912.

BUTTERWORTH AND CO. AND SHAW AND SONS, London.

The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices Issued Thereunder. With Notes and Cases by the late Sir William J. Bell, LL.D. Sixth edition. By Charles F. Lloyd. Chemical Notes revised and enlarged by R. A. Robinson. Price 8s. 6d. net.

CANTON PRESS, Oswestry.

Calendar of the University of Wales for the Academic Year 1914-1915.

CHURCHILL, J. AND A., London.

Year-book of Pharmacy: Abstracts of Papers Contributed to British and Foreign Journals and Transactions of British Pharmaceutical Conference at Fifty-first Annual Meeting. Edited by J. O. Braithwaite, Reginald R. Bennett, and Thomas Stephenson.

Medical Diagnosis. By Arthur Latham, M.A., M.D. Oxon., F.R.C.P. Lond., and James Torrens, M.B., B.S. Lond., M.R.C.P. Lond. Price 15s. net.

FOULIS, T. N., London and Edinburgh.

Nietzsche: The Preacher of War. Translated by Helen Zimmern. Price 1s. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Text-book of Massage and Remedial Gymnastics. By L. L. Despard. Price 12s. 6d. net.

A Nursing Manual for Nurses and Nursing Orderlies. By D. C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S. Price 6s. net.

Births, Marriages, and Deaths.

BIRTHS.

BENSON.—On Jan. 4th, to Dr. and Mrs. Benson, of Fiddington House, Market Lavington, a daughter.

BERNSTEIN.—On Jan. 6th, at Queen Anne-street, Cavendish-square, W., the wife of Dr. J. M. Bernstein (née Constance Wreyford), of a son.

HAMMOND, W. A., Holborn Hall, London.

Science and Religion. By Seven Men of Science: Sir Oliver Lodge, Professor J. A. Fleming, Professor W. B. Bottomley, Professor Edward Hull, Dr. J. A. Harker, Professor Sims Woodhead, Professor Silvanus Thompson. Price 1s. net.

HEINEMANN, WILLIAM, London.

Fighting in Flanders. By E. A. Powell. Price 3s. 6d. net.

HILL AND SONS, SAMUEL, Liverpool.

Edward Alanson and His Times. By R. W. Murray, F.R.C.S.

HILTON AND CO., Calcutta.

A Treatise on Hygiene and Public Health, with Special Reference to the Tropics. By B. N. Gosh, L.M.S., Calcutta, and J. Lal Das, L.M.S. Calcutta. With Introduction by Col. Kenneth Macleod, I.M.S., retired. Price 6s. net.

HODDER AND STOUGHTON, London.

National Health Insurance through Approved Societies: Being a Practical Legal Treatise Incorporating the Operative Orders and Regulations. By W. Addington Willis, LL.B., Lond. Price 10s. 6d. net.

University of London: Regulations and Courses for Internal Students. Price 2s. 6d. net.

Regulations for External Students. September, 1914. Price 1s. 6d. net.

University of London Calendar for the Year 1914-15. Price 6s. net.

LAURIE, T. WERNER, London.

Soldiers' English-French Conversation Book. By W. A. Gallichan. Price 7d.

The Nightside of Japan. By T. Fujimoto. Price 7s. 6d. net.

Nietzsche. By J. M. Kennedy. Price 1s. net.

A Woman in China. By Mary Gaunt. Price 15s. net.

The Old East India Men. By E. Keble Chatterton, Lieut. R.N.V.R. Price 12s. 6d. net.

My Bohemian Days in London. By Julius M. Price. Price 10s. 6d. net.

LIPPINCOTT, J. B., COMPANY, Philadelphia and London.

Ten Sex Talks to Girls. By I. D. Steinhardt, M.D. Price 4s. 6d. net.

Ten Sex Talks to Boys. By I. D. Steinhardt, M.D. Price 4s. 6d. net.

LONDON PUBLICITY COMPANY, 11, Adam-street, Adelphi, London.

Mental Therapeutics (Faith, Medicine and the Mind). By Charles Reinhardt-Rutland, M.D., D.S. Brux. With Introduction by Sir Oliver Lodge, F.R.S. Third edition. Price 2s. net.

LONGMANS, GREEN, AND CO., London, New York, and India.

What is Adaptation? By R. E. Lloyd, M.B., D.Sc. Lond., Major I.M.S., Professor of Biology, Medical College, Calcutta. Price 2s. 6d. net.

MACMILLAN AND CO., London.

Text-book of Embryology. Vol. I. Invertebrata. By E. W. MacBride, M.A., D.Sc., LL.D., F.R.S. Edited by Walter Heape, M.A., F.R.S. Price 25s. net.

First Book of Physiology and Hygiene. By Gertrude D. Cathcart, M.B., B.Sc. Glasg., D.P.H. Camb. Price 1s. 6d.

The Philosophy of Change: a Study of the Fundamental Principle of the Philosophy of Bergson. By H. Wildon Carr. Price 6s. net.

MARLBOROUGH AND CO., London.

French Self-Taught. Enlarged edition, revised by J. Lafitte, B-es-L. Price 1s. paper covers, 1s. 6d. cloth.

MASSON ET CIE., Paris.

Précis de Chirurgie de Guerre. Par E. Delorme, Médecin Inspecteur Général de l'Armée, Membre de l'Académie de Médecine, Membre et ancien Président de la Société de Chirurgie, grand officier de la Légion d'Honneur. Price 4.50 fr.

OLIVER AND BOYD, Edinburgh.

Transactions of the Edinburgh Obstetrical Society. Vol. XXXIX. Session 1913-1914. Edited by Dr. James Young.

G. P. PUTNAM'S SONS, New York and London.

Recreations of a Physician. By A. Stuart M. Chisholm, M.D. Price 7s. 6d. net.

Life and Law: The Development of the Exercise of the Sex Function together with a Study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex. By Maude Glasgow, M.D. Price \$1.25 net.

SAUNDERS (W. B.) COMPANY, London and Philadelphia.

Abdominal Operations. New third edition. By Sir Berkeley Moynihan, M.S. Lond., F.R.C.S. 2 vols. 387 illustrations, 5 in colours, per set. 42s. net.

Local and Regional Anæsthesia. By Carroll W. Allen, M.D., Instructor in Clinical Surgery at the Tulane University of Louisiana. 255 illustrations. 25s. net.

Chemical Analysis. By A. R. Bliss, Ph.G., M.D., Professor of Chemistry and Pharmacy, Birmingham Medical College, Alabama. Cloth, 8s. 6d. net.

UNIVERSITY OF BRISTOL.

Calendar 1914-15.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.

Outlines of Organic Chemistry: a Book Designed Especially for the General Student. By F. J. Moore, Ph.D., Professor of Organic Chemistry in the Massachusetts Institute of Technology. Second edition. Price 6s. 6d. net.

WOMEN'S EMPLOYMENT PUBLISHING CO., Prince's-street, London, W.

Careers. Fourth Edition of the Fingerpost. A Guide to the Professions and Occupations of Educated Women and Girls. Price 1s. 6d.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL NOTES IN HISTORICAL MANUSCRIPTS.

To the Editor of THE LANCET.

SIR,—The papers of the Harley family include an excerpt from the *Newsletter*, dated Whitehall, Oct. 23rd, 1688, which relates to the birth of James Francis Edward, Prince of Wales and son of James II., who was born on June 10th, 1688. Some fear was entertained that the party in favour of the Prince of Orange (afterwards William III.) would endeavour to impeach the legitimacy of the Prince of Wales, and the journal shows the quaint steps that were taken to forestall such an event.

Yesterday the Lords Spiritual and Temporal now in town being summoned to attend His Majesty in the Council Chamber, and the Queen Dowager with most of the Ladies and Gentlewomen who had been attending on the Queen's person during her being with child, or present when she was delivered of the Prince of Wales, and the physicians that had attended during that time, being all come into the Council Chamber, his Majesty declared to them the reason of their being called thither, which was as followeth:—That by reason the malice of his Majesty's enemies had spread abroad some reports concerning the Prince of Wales as if he had not been his Majesty's but a 'suppose' child, and his Majesty expecting the Prince of Orange with the first easterly wind, when his Majesty intended to go in person at the head of the Army and not knowing what might happen, his Majesty was desirous to prevent any disturbances which might happen for the future concerning the Prince of Wales. After which his Majesty desired the Queen Dowager to declare what she knew concerning the Queen being brought to bed. Whereupon she declared that as soon as the King sent to her to come to the Queen's labour she came immediately and was with the Queen till she was delivered of a son. Then the Marchioness of Powis and other ladies and gentlewomen, and after them my Lord Chancellor, Lord President, Earl of Middleton, Earl of Mulgrave, Earl of Feversham, and some others did declare upon Oath their knowledge touching the birth of the Prince of Wales, the sum whereof were as followeth:—That the Queen being ill in the morning, after she was up, ordered a pallet bed to be got ready for her in the Bed-chamber, but the pallet bed not being aired Mrs. Dawson, who was then alone with her, persuaded her Majesty to let her own bed to be made ready again for her, which the Queen consenting to her bed was made and warmed with a warming pan of hot coals of fire, after which the Queen went to bed again; then the Queen Dowager and most of the persons above named being in the room the Queen had several pains which lasted for some time, after which the most part of Lords and Ladies there saw the midwife bring the child from between the clothes and laying it in a linen cloth gave it to Mrs. La Badie and held up the after-birth. That Mrs. La Badie carried immediately into the little bedchamber where all the Lords followed and saw her open the cloth, saying it was what they all desired, a son. And my Lord Chancellor said a steam came from it as from a new-born child. My Lord Middleton said it was foul as a new-born child. Sir Steven Fox said it was as a new-born child, and the Ladies declared some that they had seen the Queen milk her breasts during her being with child, others that they had frequently seen milk upon the Queen's smocks, and some that they had seen the Queen's belly during that time. The Physicians declared that at the instance of the ladies they cut the navel string, from whence flowed lukewarm blood, which they mixed with black cherry water and gave the child to prevent fits. Mrs. Pierce the laundress and wife to Pierce the surgeon declared upon oath that the Queen's linen during the time of lying-in was as the linen of a child-bed woman used to be, and the midwife deposed that she delivered the Queen of the Prince of Wales. After all which the King himself was pleased to declare that besides that his Majesty had felt the child stirring in the Queen's belly about twenty times during her being with child, his Majesty, as he had usually done, at the birth of his other children, had laid his hand upon the Queen's stomach, during her being in labour, to keep the child from coming back, and that he followed the child down with his hand till he could tell them it was coming into the world.

I am, Sir, yours faithfully,

Jan. 12th, 1915.

WHITE ROSE.

HEALTH AND HOSPITALS IN HONG-KONG.

A REPORT on the Blue-book of Hong-Kong, prepared by Mr. Claud Severn, Colonial Secretary, has been received at the Colonial Office and presented to Parliament. From this it appears that at the Census taken on May 20th, 1911, the Chinese population amounted to 444,664 and the non-Chinese civil community numbered 12,075, making a total of 456,739, of whom 104,287 reside in the New Territories and in New Kowloon. The estimated total population at the middle of 1913 was 489,114, but this included the New Territories, and as the birth and death figures do not include those from this area (with the exception of New Kowloon) the population for the purposes of calculating these rates is estimated at 398,520, of whom 21,740 were non-Chinese. The general birth-rate for the year was 11.7 per 1000 among the Chinese community and 15.8 per 1000 among the non-Chinese. The general death-rate was 21.75 per 1000 among the Chinese community and 10.9 among the non-Chinese. The number of deaths from malaria (290) showed a considerable decrease on the previous year (432). The deaths from plague numbered 386 as compared with 1763 in 1912. Small-pox deaths numbered 84, all Chinese but two. There were 2537 deaths from respiratory diseases among the Chinese, as compared with 2317 in 1912. Pulmonary tuberculosis and phthisis claimed 885 Chinese victims, while other forms of tuberculosis represented an additional 384 deaths, making a total of 1269, or 15.5 per cent. of the total deaths among that community. Beri-beri was responsible for 339 deaths as compared with 231 during 1912, and 320 in 1911.

There can be very little doubt that the Chinese quarters generally are still in an overcrowded condition, and although the incidence of plague was light during 1913 there is reason to fear that the colony may not continue to be so fortunate. The Sanitary Department are continuing their efforts to keep down the number of rats and to exclude them as far as possible from dwellings, while the scavenging service is also being strengthened with a view to reducing still further the available food-supply of the rat population. The mean shade temperature for the year at Kowloon (108 feet above mean sea level) was 71.9°, the same as in 1912 and the ten preceding years. The hottest month was July, with a mean temperature of 82.8° and the coldest January, with a mean temperature of 59.2°. The temperature at the high levels of the Peak district is from 3° to 8° less than at Kowloon. The total rainfall for the year was 83.75 inches, as compared with an average of 80.85 inches during the ten preceding years.

The policy of the Government in controlling the importation and sale of morphine, compounds of opium, and cocaine was vigilantly maintained throughout the year, and the use of these drugs in the colony is now exclusively confined to medical purposes.

To avoid the complete seclusion from friends and relatives which removal of Chinese plague patients to the Kennedy Town Infectious Diseases Hospital entailed, four district plague hospitals are now maintained by the Chinese in various parts of the colony. These are under the management of the Chinese Public Dispensaries Committee, which body also controls the eight dispensaries in existence, including one for the boat population on a hulk in Causeway Bay. The whole cost of maintenance is defrayed by voluntary subscription. These institutions provide the Chinese with the services of doctors whose certificates will be accepted by the Registrar of Deaths, and with the services of interpreters, who can assist the inmates of houses where cases of infectious disease have occurred. Coolies are engaged and ambulances and vans are provided in order to remove cases of infectious diseases to the Infectious Diseases Hospital and dead bodies to the mortuary. The dispensaries also receive sick infants and send them to one or other of the convents and arrange for the burial of dead infants. Free advice and medicine are given and patients are attended at their houses.

The new Kwong Wa Hospital for Chinese in the Kowloon Peninsula was opened in the autumn of 1911; it occupies a site of three acres, and will ultimately provide accommodation for 210 patients. The Hong-Kong University is composed of three faculties: (1) medicine, (2) arts, and (3) engineering, and the medical faculty offers great facilities for the practice of medicine. The anatomical laboratories were the gift of a Cantonese gentleman, Mr. Ng Li-hing. There is a large staff of instructors in medicine, and all the principal doctors of Hong-Kong give lectures at the University.

"WAR BREAD."

THE Germans have been issuing repeated warnings to the public to economise in the use of bread, especially wheaten bread, although the most frequently used bread in that country is black bread or rye bread; and now a new bread called the "K" (Kriegs-War) bread has been ordered to be consumed, which contains a large admixture

of potatoes. With wheat steadily going up in price this has interest for ourselves. There would no doubt be some grumbling at bread containing potatoes, but it is interesting to recall that in years gone by potatoes have been used in the making of bread by British bakers as a routine. At certain times of stress in this country the rich have been exhorted to be sparing of the use of wheaten flour by mixing it with potatoes, so that more might be available for the poor, and elaborate recipes for making bread with the proper proportions were printed in some of the old British favourite almanacks. Potatoes yield in Germany 40 million tons to 8 million acres, whereas wheat only yields 4 million tons to 5 million acres, and rye 8 million tons to 14 million acres.

ACCEPTABLE APPRECIATION.

To the Editor of THE LANCET.

MY DEAR EDITOR,—As I look back over this busy and eventful year, I realize to how great an extent the progress of the Department has depended upon the helpfulness of those who, while not in the Department or of it, have sympathised with its aims and have co-operated in its work. Officially and personally I feel under obligation for the help you have given.

With best wishes for the new year,

I am, yours cordially,

S. S. GOLDWATER, M.D.,

Commissioner of Health, City of New York.

Dec. 31st, 1914.

THE BRITISH TRADITION OF ENDURANCE.

A TRADITION of endurance is the heritage of Englishmen. It may prove of interest at a time when so much is being suffered in the trenches at the front and, be it remembered, in our North Sea Fleet during its anxious and strenuous vigil, to remind ourselves of some of the famous stories of what Britons have endured in the past. A choice collection of horrors nobly faced is contained in the fine old "Narrative of Captain David Woodard and Four Seamen," which was published in 1804, with a curious appendix "containing narratives of various escapes from shipwrecks, under great hardships and abstinence; holding out a valuable Seaman's Guide, and the Importance of Union, Confidence, and Perseverance in the midst of Distress." The case of Robert Scotney is so well authenticated as to compel belief. This man, a whaler, was picked up in the South Seas in the year 1803. He was the sole surviving occupant of a large boat, the crew of which had been swept away by a heavy sea which drenched his food. He was alone at sea for 75 days, during which while steering a course for what he believed to be the nearest land he kept himself alive on 3½ lb. of meat, 3 lb. of flour, 6 lb. of bread, and two hogsheds of water, some whale-oil found at the bottoms of casks, and a small quantity of salt. "He likewise emptied a medicine chest he had on board and got out of it some burning medicine, which he found made his body a little comfortable and warm." He never had his clothes off and was almost constantly wet, yet he, humble sailor though he was, possessed the foresight and the moral courage to allowance himself daily while setting his sails, first for Tristan da Cunha, which he missed, and then for the Cape of Good Hope. When found he had been for some days too feeble to visit his small store of food or to shift his helm, and had kept alive with the help of tobacco, of which he took an amazing quantity. When taken on board "both his cheeks were swelled out amazingly with the ruinous quality he had in his mouth, and which he seemed to suck with convulsive agony." He had entirely lost the use of his limbs; he was pale and emaciated, and it was the opinion of the surgeons that he could not have survived two days. Scotney was a Lincolnshire man, but we are not told whether he was strong or particularly enduring, or whether his heredity was in any way remarkable.

Other survivors of hardship whose narratives are on record attained to respectable ages and must have been men of exceptional stamina. Thus William Boys, for many years Lieutenant of Greenwich Hospital, who died in 1774 and fasted for 12 days annually in order to commemorate the hardships endured by him in 1727, must have been of a peculiarly sturdy type. Cast away with 15 others in a boat in mid-Atlantic, he managed to survive 12 days without food or liquids, except a little rain-water, some human blood, and a few mouthfuls of human flesh. Though seven or eight of the boat's crew died, the survivors were restrained through horror and various other motives from becoming complete cannibals, and they carefully abstained from eating any parts of their dead comrades save the hearts and from drinking more than 4 pints of blood, carefully measured, of four of them. They might have been more cannibalistic, but the point of the narrative is that for 12 days they abstained from human flesh almost entirely and were obviously debarred from

other nourishment. These old sufferers were curiously religious and strangely subordinate even when they turned into eaters of dead men and waited to eat their horrid ration after Captain Scurion had been fed. And it is this strong religious feeling and this sense of discipline which seems to have become part of the British tradition. It emerges in innumerable letters from the front to-day, and is one of those assets of mind as dominant over body which differentiate the great from the ignoble races. There is a similarity about these classic narratives of endurance which, though inspiring, renders repetition unnecessary. We have cited two typical instances, and need not do more than mention the sufferings of Lieutenant Bligh, Captain Inglefield, Dean, Dominicus, Fellowes, and Kennedy, all of which were attested by numerous witnesses. Among these heroic old sufferers one figure particularly interests us, that of the ship's surgeon, who seems always to have been of the boat's crew. Among Boys's companions, for instance, was Thomas Scrimmour, surgeon, who lived at North Cray in Kent, and died at the age of 80 in 1784. Though he had been one of the first to be served in the shrinking and horror-stricken anthropophagies of his comrades, he was noted through life as a pattern of "probity and benevolence." Character, indeed, seems never to have been wanting to the old adventurous medical men of the age that saw the foundation of the Empire and the final formation of the British type.

VITAL STATISTICS OF BARBADOS.

A REPORT prepared by Major J. A. Burdon, C.M.G., Colonial Secretary of Barbados, states that the population of the colony on Dec. 31st, 1913, was estimated to be: 72,066 males, 101,293 females—total, 173,359. The birth-rate per 1000 for the year was 31.9, as compared with 36.8 in 1912; and the death-rate 21.3, as against 41.0. Illegitimate births numbered 3359, or 60.5 per cent. of the total births. The burials of children under a year old numbered 1173, giving a rate of 213 per 1000 births. This shows a decrease of 1469 such burials, and a reduction of 203 in the rate per 1000 on the figures for 1912, which were abnormal. The mean maximum temperature for the year was 83.2° F. and the mean minimum 74.9°. The average rainfall from 138 stations was 56.84 inches. At the General Hospital, situated in Bridgetown, 3356 patients were admitted during the year, of whom 247 died, and 26,913 out-patients were treated. At the Lazaretto there were 12 admissions, 1 discharge, and 11 deaths, leaving 120 inmates at the end of the year. Compulsory segregation is not in force in the colony. At the Lunatic Asylum the daily average number of patients was 399. The admissions numbered 132, the discharges 39, and the deaths 76.

BRITISH SALVARSAN.

The British Board of Trade having granted a licence to Mr. Henry S. Wellcome for the use of the enemy patents, Messrs. Burroughs, Wellcome, and Co. are now manufacturing a chemical product which, after a biological test under arrangements approved by the Board, is issued under the name "Kharsivan" Brand Salvarsan. "Kharsivan" is positively stated to be identical chemically, physically, and therapeutically with the salvarsan of German manufacture, and is employed in the same manner and dosage. At the moment two strengths only are issued, 0.4 and 0.6 gramme, in hermetically sealed tubes, and supplies are limited. That Messrs. Burroughs, Wellcome, and Co. should have been equal to the occasion, and that their scientific resources should have brought them to the prompt solution of the problem of manufacture is a matter upon which this enterprising firm may well be congratulated.

THE ETIOLOGY OF THE WAR.

ONE of the best condensed summaries of the causes, predisposing as well as exciting, of the war that we have seen is "Origins of the Great War, or the British Case," by John Kirkpatrick, M.A., LL.D., Emeritus Professor of History, University of Edinburgh, published by Adam and Charles Black, Limited, of London, price 1d. The author divides the causes into (1) immediate, (2) indirect, (3) constitutional, and considers each class with remarkable lucidity and such method and order as one has a right to expect from a professor of history.

BOISSELIERS' BELGIAN CHOCOLATE FUND.

Messrs. Boisseliers, chocolate makers at Watford, are appealing to the public to buy 250,000 boxes of their excellent chocolates and thus provide £5000 for the Belgian sufferers. About one-fifth of the total receipts of the sales are being given to H.M. the King of Belgium through the *Daily Telegraph* Shilling Fund, and the purchase of either one 5s. box, two 3s. boxes, or four 1s. 6d. boxes means a contribution of 1s. to help the Belgians.

THE gentleman who found an unopened letter addressed to the Editor of THE LANCET in an omnibus, and who kindly and anonymously posted it to this office, is informed that his courtesy is much appreciated.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Dr. C. Chree: Atmospheric Electricity Potential Gradient at Kew Observatory, 1898-1912.—Prof. A. E. H. Love: The Transmission of Electric Waves over the Surface of the Earth.—Mr. L. Silberstein: Electromagnetic Waves in a Perfectly Conducting Tube (communicated by Prof. A. W. Porter).—Mr. H. B. Keene: An Electrically-heated Full Radiator (communicated by Sir O. Lodge).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—W. Langdon Brown, Philip Hamill, J. Gordon Sharp): at 4.30 P.M.

Papers:

Dr. Douglas Cow: The Action of the Suprarenal on Renal Secretion.

Dr. Ikeda and Professor Dixon: The Action of Ergot on the Pulmonary Circulation.

GENERAL MEETING OF FELLOWS at 5 P.M.

A Ballot will be held for Candidates for Fellowship.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawford, Leonard G. Guthrie): at 5 P.M.

(1) Exhibition of Books Illustrating the History of Military Hygiene. The President, Dr. Norman Moore, will discourse on such books as he may select from the collection.

(2) Lucian and Medicine. Part I.: Dr. J. D. Rolleston.

N.B.—The books to be shown and discussed at the meeting will be on view in the Library from Jan. 14th to 21st, and will be open to all Members of the Section between 11 A.M. and 6.30 P.M.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. H. W. Barber: Pityriasis Rubra Pilaris.

Dr. J. H. Sequeira: (1) Gangrene of Toes in an Infant; (2) Bristle from Hair-brush with Ova of *Hæmatopinus suis*.

Dr. G. Pernet: Extensive Pigmented Hairy Nævus.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—Philip Turner, J. D. Rolleston, Sidney Gilford): at 4.30 P.M.

Cases and Specimens:

Dr. E. B. Gunson: Suprarenal Hemorrhage in an Infant.

Dr. J. D. Rolleston: Congenital Heart Disease and Ulcerative Sore Throat.

Mr. Sydney Stephenson: Hematoma of the Eyelid in an Infant.

Dr. H. W. Barber: Enlarged Liver in a Boy.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Cantor Lecture:—Dr. F. M. Perkin: Oils, their Production and Manufacture. (Lecture I.)

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Demonstration of Pathological Specimens and Clinical Cases.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Paper:—Dr. C. Singer: Notes on the History of the Microscope.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—9 A.M., Dr. Simson: Gynecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardee: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY AND FRIDAY.—3 P.M., Lecture:—Dr. A. Wylie: Diseases of the Larynx.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Vesicular and Bullous Diseases and their Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture I.)

THURSDAY.—3 P.M., Mr. H. G. Plimmer: Modern Theories and Methods in Medicine. (Lecture I.) (Illustrated by experiments, micro-photographs, &c., and Cinematograph films.)

CHADWICK PUBLIC LECTURES, Lecture Hall, Royal Society of Arts, John-street, Adelphi, W.C.

FRIDAY.—5.15 P.M., Dr. F. M. Sandwith: War and Disease—II., The South African and Russo-Japanese Campaigns.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. D. Core: Cerebral Tumour.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 13th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Max-imum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 7	29.486	S.W.	0.53	54	52	43	46	46	Cloudy
" 8	29.480	S.W.	1.10	66	47	42	41	43	Cloudy
" 9	29.304	W.	...	60	45	40	40	41	Raining
" 10	29.690	S.	0.30	47	44	35	36	38	Fine
" 11	29.390	S.W.	0.01	65	47	38	40	42	Fine
" 12	29.760	N.W.	0.05	57	46	39	40	43	Raining
" 13	30.000	S.W.	...	61	54	42	45	45	Raining

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Eugenics Review, Revue d'Hygiène, Birmingham Medical Review
Journal of Anatomy and Physiology, Bulletin de l'Office International d'Hygiène, Publique, Dublin Journal of Medical Science, Cleveland Medical Journal, Medical Journal of Australia, Medical Review, American Journal of Medical Sciences, Indian Journal of Medical Research, Surgery, Gynecology and Obstetrics, Journal of Tropical Medicine and Hygiene, St. George's Hospital Gazette, Duodecim, Science Progress, &c.

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A Clinical Lecture.

"AGAINST HIS OWN BODY."¹

Delivered at St. Bartholomew's Hospital on Jan. 20th, 1915,

By D'ARCY POWER, F.R.C.S. ENG.,

SURGEON TO THE HOSPITAL; LIEUTENANT-COLONEL, R.A.M.C. (T.).

GENTLEMEN,—The subject which I have chosen for my lecture to-day would appear at first sight to be scarcely germane either to the time or the circumstances. A little reflection, however, will show you that it is not so foreign as it seems. It touches us politically and socially. Politically, because we require the most perfect health possible in every man of the nation to enable him to undergo the wellnigh intolerable hardships of war. Socially, because our losses are so great that the physique of the next generation must depend largely upon the continence of the young men of to-day. The subject, as you know, has already arrested the public attention in a remarkable manner, and henceforward you will be expected to give satisfactory reasons against the practice of fornication.

If you ask me why I should lecture to you on so distasteful a subject I should reply, as the Lord John answered the Queen in that Italian Guazzo: "An old, a grave, discreet man is fittest to discourse on such matters because he hath likely more experience, observed more, hath a more staid judgment, can better discern, resolve, discuss, advise, give better cautions and more solid precepts, better inform his auditors and by reason of his riper years sooner divert them." And that short excuse of Mercerus shall be mine: "Si male locata est opera scribendo, ne ipsi locent in legendo" ("If I have spent my time ill to write, let them not be so idle as to read").² But I am persuaded it is not so ill spent. I ought not to excuse or repent myself of this subject on which many grave and worthy men have written whole volumes.

I may say at the outset that the moral aspect of the question does not concern us directly and may safely be left in better hands than mine. I would express my belief, however, that our present standard of sexual morality is much too low, although there is some evidence that it is improving with the spread of education. To-day at any rate I am concerned with the medical and eugenic sides of the question.

THE PHYSIOLOGICAL ASPECT.

We may start at once with the broad statement that fornication is absolutely unnecessary. There is a widespread belief amongst many classes that sexual connexion is necessary for a young and healthy man. Such a belief is physiologically incorrect. It no more represents the truth than that other belief which long held sway, but is now fortunately exploded, that no man could attain a healthy old age unless he "purged his reins and cleared his head" by getting drunk at least once a month, some said every fortnight. Both suggestions originated with egotistic hedonists and were promulgated by those who were glad of an excuse to cloak their vices.

Virility depends amongst other things upon the internal secretion of the testes which, as you well

know, is produced continuously, is reabsorbed into the blood, and is not excreted. The semen or external secretion of the testes is formed in a manner similar to many other glandular secretions in the body. It is stored up in the vesiculæ seminales, and if it is not required a great part is reabsorbed whilst the rest is excreted from time to time by a purely involuntary process. The whole is a reflex action, and it is no more necessary to stimulate the vesiculæ seminales to contract than it is necessary to hawk and spit when saliva fills the mouth. Occasional nocturnal emissions are natural and unavoidable. If they are too numerous it is an indication that the man is thinking too much about sexual matters or that his general health is disturbed. Nature is quite able to take care of herself in regard to the seminal secretion, and it is wholly unnecessary to resort to fornication to help her.

You may safely assure any young man who asks your advice that fornication is a dangerous and unnecessary expedient, and you may further warn him that if he once begins it will be extremely hard to become continent again, whilst if he remains chaste the sexual appetite will remain dormant without in any way deteriorating. In the end, too, he will be healthier, he will be more likely to marry for he will have a better opinion of women, he will have a happier married life, healthier children, and he will be free from the remote and often painful effects of those diseases which are known as venereal. You may also assure him that fornication is no more an evidence of manliness than is smoking or drinking. All three are the false ideals of youth and a bygone age. Who of you did not think at school that it was a manly thing to smoke? Did not the lower classes endeavour to express the summum bonum of aristocracy when they said that such a one was "as drunk as a lord." Lapse of time has changed our ideals in both cases, and we know that manliness connotes very different attributes.

Promiscuous intercourse degrades immediately by causing loss of self-respect. "Post coitum omne animal triste," said Aristotle, and the more introspective pass through a purgatory which is out of all proportion to the satisfaction they have gained, the pain being partly regret for their folly and partly fear for the possible consequences. This loss of self-respect would be bad for the community if it was limited to the man; it is made ten times worse by the fact that it is shared by the woman and often drives her to very desperate courses. Much has been written about the mentality of the prostitute, public as well as clandestine, and it is agreed that whatever her physical attributes may be she differs widely from the average type of woman in the race to which she belongs. In Europe she is often a sexual degenerate in spite of the highest social gifts, or she may be the most degraded of all animals like the woman who earned £30 a week by receiving 40-50 men a day. Consort with such persons does much to destroy happiness in subsequent married life even if the husband has remained free from disease. The sexual instincts of the prostitute are directed towards the gratification of lust or the acquisition of money; those of the healthy-minded woman, so far as they exist at all before marriage, are towards motherhood, the means being secondary and ill-understood. Indeed, they were well expressed by the little girl who, when asked what she was going to do when she grew up, replied boldly, "she was going to get married, have a baby, and then she was going to get married again."³

¹ Flee fornication. Every sin that a man doeth is without the body; but he that committeth fornication sinneth against his own body.—I. Cor. vi. 18.

² Burton's Anatomy of Melancholy, part iii., section i., memb. i., subs. i.

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kill her husband that she might have the child all to herself.

VENEREAL DISEASE.

If these were the only arguments against fornication we might well be contented to deal with the whole matter privately, as we have to deal with other filthy practices which merely concern the individual. We should be neither better nor worse off than in the pagan times when philosophers wrote and argued against it in vain. There is now an added danger of catching and transmitting disease. This danger is very great, for in the year 1908 no less than 1959 prostitutes examined in Berlin were found to be diseased out of a total of 2944; whilst in Cologne in the same year only 247 were found healthy out of 600. Even the unaffected women were only relatively healthy and were not capable of infecting at the particular time they were examined. Sooner or later all become diseased. A Wassermann test proves that prostitutes are immune to syphilis because they already have it; and they are sterile as a result of inflammatory conditions associated with gonorrhœal infection. Every man, therefore, who practises fornication runs a risk almost amounting to a certainty that he will get gonorrhœa or syphilis or both. Either or both diseases may follow a single lapse, and may be productive of life-long misery to himself, to the woman who is unfortunate enough to become his wife, and to the children of the marriage. Through him the State, too, may suffer a grievous injury.

Of the three diseases which can be caught from fornication—viz., soft sores, gonorrhœa, and syphilis—I have told you repeatedly that soft sores are neither more nor less than poisoned wounds and must be treated as such. Their danger lies in the fact that they may be associated with a coincident syphilitic infection, masking its existence and causing active treatment to be unduly postponed.

Gonorrhœa is a more serious disease than it is usually supposed to be. It is serious to the individual during the acute stage by incapacitating him from work, later by crippling him from joint disease. It is very difficult to cure, and if a stricture results it may shorten his life by causing retention of urine, cystitis, and disease of the kidneys. Because of the difficulty of cure a man may give the disease to any healthy woman he marries. She may thus become a permanent invalid, and may remain sterile as a result of the inflammation from which she has suffered, although in many cases the sterility is caused by the double epididymitis of which the husband has been the subject. Children born whilst the mother is still uncured frequently have such a severe purulent inflammation of the eyes that the sight is impaired or may be completely lost. The State, therefore, is greatly damaged by the gonococcal infection of the family; it loses the services of two generations either wholly or in part from a cause which is easily preventable.

Syphilis is even more harmful both to the family and the State. It often paralyses and lands its victims in an asylum with the most incurable of mental disorders; it predisposes to tubercle and cancer, and it shortens the expectation of life. Unfortunately, it does not render the man sterile, as often happens in gonorrhœa, and the disease is transmitted to the children. They may either be born dead, or those who survive may suffer from various illnesses which leave them with lasting disfigurement, and the loss of their father's incontinence as well as a loss of their natural physical and mental

activity. Syphilis has the farther disadvantage as a disease because there are periods when it is acutely infectious, and during these stages a man may infect his nearest and best friends in the most innocent manner, as by kissing or using in common a pipe or a glass.

It must be clearly understood that these diseases are not contracted only from mercenary prostitutes—the ordinary street-walker. They are equally, or perhaps more, likely to be obtained from the very dangerous class who are known as clandestine, or occasional, harlots. These women are much more ignorant in sexual matters than their more hardened sisters. A gonococcal infection to them is merely an attack of "the whites," and the initial manifestation of syphilis is only "a boil." They do not know that they are ill, and they do not consequently seek advice to be cured.

THE QUESTION OF PREVENTION.

The risks attending fornication, therefore, are very great, but they can be absolutely avoided by continence. Much rests with the individual, though he ought to be helped by the State, whilst as members of the medical profession I conceive it to be part of our duty both to the individual and to the State to teach the elements of sexual physiology, and by so doing to diminish the diseases which cause so much damage.

A healthy-minded man does not become unchaste without a struggle, and when he has been warned of the risks he usually has the sense to look forward and not imperil his future health and happiness. His natural modesty comes to his assistance, and he neither goes out of his way to look for a prostitute nor does he deliberately endeavour to seduce a virgin. Some day, however, he takes a little too much alcohol. He does not get drunk, but he takes enough to lower his self-control. He is "picked up," as he will tell you, by some loose woman on his way home, and from that evening he dates his downfall. The temptation acts with especial force at the present time, when the young men of the country are separated from the good influences of home, and are herded in camps with many thousands of companions of their own age. The result is already beginning to show itself, and in some places more than in others. It behoves everyone, therefore, who is in a position of authority to set an example of probity in sexual matters. They should remember that venereal disease and the illnesses which result directly from them are very common causes of invaliding men out of the army; that at the present time every soldier is needed in the best of health and that it is of vital importance that preventable wastage should be prevented.

It goes without saying that a young man who is happily engaged to marry a sensible girl of his own age and station in life is not so likely to yield to temptation as his less fortunate comrade. He has the satisfaction of thinking that if she is willing to wait for him he can exercise equal restraint. It is needless, too, to point out that the less a man concentrates his thoughts upon his sexual appetite the less it will trouble him. The time is fast coming when it will be thought as bad form to tell a "smutty" story as it now is to swear. We have it on excellent authority that our army swore terribly in Flanders, and our fathers have told us how prevalent was the habit even as late as the Regency period and the early Victorian days in England. The spread of education, bringing with it a larger vocabulary, has enabled us to express our feelings

more adequately but with less blasphemy. There is very little doubt that with more to talk about and a wider range of interests the dirty story will suffer a similar eclipse. Pornographic literature already finds fewer adherents, whilst, thanks to the admirable writings of such men as Anatole France, the cult of the old-fashioned "French novel" and its "realistic" successor is dwindling rather than extending.

Were I asked in what way the State could best help to stop the spread of venereal disease I should answer without hesitation, Put the law against solicitation into active operation. At present it is a dead letter, and the streets of our large towns are a disgrace to the community. The women who frequent them must be well known to the police, for they may be seen day after day in the same streets. They will certainly continue their trade, but the men will then have to look for them, and many a youth will be protected from temptation. Knowledge, too, is a powerful help. The physiology of the generative system is no more a mystery than the physiology of digestion or respiration, and there is no reason why it should not be explained in a scientific manner as a part of a course of biology. Let the women teach the women—there are plenty of well-taught women nowadays who are fully equal to the task—and let the men instruct the men. The teachers themselves must be carefully chosen not only for their knowledge but for their general attainments, which should be sufficient to put their facts in proper focus.

TREATMENT.

If, as unfortunately happens only too often, a man finds that he is infected with venereal disease, he should be taught that in his own interests as well as in those of the State he ought to go at once to a doctor. Every day that he delays lengthens the duration of his cure and may even prevent it entirely. Quacks and unqualified practitioners should be carefully avoided. They may have empirical knowledge, but they lack the scientific basis which every qualified man must have in some degree. Their object is to obtain as much money as possible, and they consequently prolong the cure and work upon the fears of their unfortunate clients; indeed, of all quacks the unqualified specialist in the treatment of venereal diseases has the worst reputation. The doctor, on his side, must not assume a repellent attitude. It is his business to cure, not to moralise, and to remember that the diseases run on the same lines as any other infective disorder. He must be especially careful to make a correct diagnosis especially in syphilis, where immediate treatment alone holds out a prospect of cure. For this purpose he must avail himself of scientific tests, and must not rely solely upon clinical diagnosis. He should warn his patient from the outset of the particular dangers which are likely to arise and of the manner in which the diseases are spread. Above all, he must point out the necessity for patience, since it is only by a prolonged course of treatment that a real cure can be effected. We have now long passed the stage when the disappearance of symptoms and signs was thought to be identical with eradication of the disease, and we have learnt that the worst effects have followed a conscientious but insufficient treatment. By these means you will gain the confidence of the patient, and when you have gained his confidence the battle is half won. He will follow your advice, and if he has come early enough you can soon put him well on the road to complete cure.

THE BLACK (PIGMENTED) APPENDIX.¹

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IN THE LANCET of July 19th, 1913, p. 135,² I described a series of four cases in which a very unusual amount of pigmentation of the mucous membrane of the appendix was found after its removal for disease. Three of them were sketched, and I am able to produce the illustrations for the inspection of the section; the fourth appendix was mounted by Mr. Shattock and is also shown. It differs from the others in the fact that there has been a great destruction of tissue towards the distal extremity.

With the exception of the case of extensive pigmentation of the large bowel, due to lead deposit, described by Dr. G. Newton Pitt,³ I did not know of any similar appearance at that time. Recently, however, the subject of pigmentation of the bowel has been referred to by Sir J. Bland-Sutton,⁴ who found a very blackened state of the mucous membrane of the bowel in a woman suffering from obstruction due to cancerous growth of the large intestine. The cause of this pigmentation could not be ascertained, for the patient recovered. He refers in that address to an article by Dr. Ludwig Pick⁵ (which had escaped my notice) in which Dr. Pick refers to two cases of pigmentation found in English publications (besides that by Dr. Pitt), both of which were caused by the deposit of mercury in the tissues. 1. The case (described by Dr. C. J. Williams) of a woman, aged 74⁶, who had taken mercury regularly for 43 years. Here the submucous tissue of the large intestine from the ileo-cæcal valve to the rectum was mottled like the skin on a toad's back. The patient had rectal prolapse before death, and the mucous membrane was seen to be deeply pigmented when extruded. 2. The case of a man, aged 64,⁷ who had been under treatment for syphilis. He presented a similar pigmentation of the large bowel dependent on a deposit of mercury in the mucous membrane. In this case, which was described by Dr. H. D. Rolleston, there was no evidence of pigmentation during life.

The contribution to the subject which I wish to make now consists of two cases of marked pigmentation of the appendix met with in women of different ages and circumstances. Their residences were far apart in Berkshire and Worcestershire, whilst of the four other instances already published three came from inside London and one from Kent. The cause of the phenomena must therefore be very widely distributed.

CASE 1.—The patient was an unmarried lady, aged 48, who was seen in consultation with Dr. L. M. Guilding on April 30th, 1914. The medical history was a long one. Since the age of 13 she had been delicate, and for years past constantly under medical treatment. Since the age of 21 she had always suffered from constipation, and the bowels had not acted without the use of purgatives. She had complained of indigestion for years, sometimes worse and sometimes better; of late years she had of necessity been very careful as regards her diet. In 1899 the cervix uteri was divided for dysmenorrhœa. In 1900 she had symptoms of

¹ A paper read before the Surgical Section of the Royal Society of Medicine, Jan. 6th, 1915.

² The Black (Pigmented) Appendix, Battle.

³ Pathological Society's Transactions, London, 1891, p. 109.

⁴ Presidential Address of the Medical Society of London, THE LANCET, Oct. 17th, 1914, p. 931.

⁵ Verhandlungen der Berliner Medicinischen Gesellschaft, 1911, p. 181.

⁶ C. J. Williams: Pathological Society's Transactions, London, 1867, p. 3.

⁷ H. D. Rolleston: Ibid., 1892, p. 69.

inflammation of subacute character which were said to have had their origin in the right ovary and broad ligament. Ever since the operation in 1899 she had had occasional attacks of pain and tenderness in the right iliac fossa, during which there had sometimes been vomiting. In some of these attacks the pain was more in the upper part of the abdomen. In 1904 she had an attack which was described as acute ovaritis on the right side, and had felt "uncomfortable" on that side since. In 1911 she had an attack of "neuritis" in the right arm, which lasted nearly the whole year. She was also under treatment for colitis and a toxic condition towards the end of that year, and this was resumed for varying periods during 1912 and 1913, finishing in March, 1914. Before 1914 the right iliac fossa was not much in evidence; after the beginning of that year she had four attacks of pain and tenderness in that region, one of them being severe and accompanied with a rise of temperature and other signs of inflammation, but without vomiting. She had become thin, sallow, and pale, with a persisting tenderness over the appendix region. The diagnosis previously given was that of a chronic appendicitis with probable ileal kink and chronic intestinal stasis.

An examination by the X rays after a bismuth meal had been carried out and the following points were established: 1. A delay in the passage of the bismuth through the cæcum. 2. The ascending colon and transverse colon were distinctly dropped, and there was considerable stasis in the passage of the bismuth all along the large bowel. 3. Considerable loss of tone in the rectum. Here the bismuth lodged and distended the part, having to be evacuated by means of enemata.

When I saw her in April I agreed with the diagnosis of subacute inflammation of the appendix, with want of muscular power in the large bowel and rectum. She was rather feeble, delicate, and "tired-looking." The abdomen was slightly distended, generally tympanitic, and tenderness was complained of on examination of the right iliac fossa. Operation was performed on May 2nd, 1914. The appendix was about $3\frac{1}{2}$ inches long, slightly adherent at the tip. The meso-appendix was shortened at one point, and there were chronic catarrhal changes with submucous fibrosis. The mucous membrane was of a uniform brownish-black colour, due to the deposit of pigment. From the abrupt termination of this at the place where the appendix had been cut off it was quite evident that a similar condition extended into the cæcum. The intestine did not give any evidence of this on inspection. The right ovary was atrophied and the tube normal. A membrane united the transverse and ascending portion of the colon at the hepatic flexure, making a somewhat sharp and fixed bend. It appears to have been derived from the right margin of the omentum. This membrane was divided, and a few vessels in it were ligatured. The cæcum was somewhat larger than usual, with a tendency to drop towards the pelvis. The ovary and tube were removed. Recovery was uneventful.

CASE 2.—This case was also met with last year. On May 17th, 1914, I operated for Dr. A. A. Brockatt, of Malvern, on a young unmarried lady, aged 27, who gave the following history. Five months before she had had an attack of appendicitis which lasted five days. Two months before she had suffered from a second attack which lasted seven days. There had been some occasional pain between the attacks, but otherwise she had not been ill. She always suffered from constipation. Nothing abnormal was felt on examination, but there was some tenderness in the right iliac fossa, and she stated that pain had been present there the previous evening. The temperature was normal. The appendix when removed was found to be $5\frac{1}{2}$ inches in length, bulbous, and red at the top from recent inflammation. The meso-appendix was shortened at one point. The mucous membrane was pigmented, the shade deepening in intensity to the line of section, where it was quite black. There was submucous fibrosis. No adhesions were present. No other abnormal condition was found. This appendix was lost.

These two cases, together with those already published, make a series of six which present some common features. In the first place there was an extensive brownish-black pigmentation evidently not limited to the appendix, but spreading an unknown distance into the large bowel. The

patients were all of the female sex (aged 27, 30, 32, 43, 48, and 48) and in each there was a history of constipation of long standing, which amounted to intestinal stasis in more than one of them according to their medical attendants. It would appear as if in some the difficulty with the bowels had led to a secondary inflammatory affection of the appendix. Operation in each was for the relief of pain caused by this. The pigmentation was found on examination of the removed appendix, and in only one was there any appearance of darkening of the bowel as examined from the operation incision. Microscopical examination showed the deposit to be both in and between the cells of the mucous membrane (Shattock).

Chemical analysis of the first three specimens by Mr. Le Sueur showed that the pigmentation was produced by a deposit of iron, the exact combination not being defined owing to the small quantity of material available. There was no bismuth, lead, or mercury present. In only one patient was there any history of the taking of iron medicine, and she had been given the compound syrup of the hypophosphites ($\frac{3}{4}$ gm. ferri hypophosph.). There is very little, if any, tendency to pigmentation of intestine by iron given in the form of medicine, otherwise the condition would be frequently met with in the post-mortem room. And we should have had many references to it in our medical publications.

From the fact that I have met with these six cases within a comparatively short period there is a probability that it is more common and widely spread than we have suspected. The question arises as to the source from which the iron has been obtained. There can, I think, be very little doubt that it is derived from wheat flour prepared by the iron rollers which are used in the modern process of milling. These rollers are fluted, and the fluting wears down somewhat quickly, and although measures are taken to prevent iron particles from entering the mill none are taken to remove the iron dust and small particles which come away as a result of the rubbing of one roller against the other. The method of grinding with iron rollers was once applied to the manufacture of light-coloured pigments for painting walls, but had to be given up because of the brown patches which appeared on the walls to which such paint was applied. The rollers wear away more quickly in the grinding of wheat, especially that grown abroad, which is harder than ours, than in the preparation of pigment. Chemical examination of a quantity of best flour has shown the presence of an abnormal amount of iron, although none could be separated from the flour by means of a magnet.

I have already alluded to the fact that no measures are taken to extract the iron from flour prepared by these rollers, therefore there is a considerable quantity being taken into the alimentary canal by the population at large. It is very probable that the increased amount of troublesome constipation of recent years, which in some cases is described as "stasis" and ascribed to a kink of the bowel, is due to this cause; kinks possessing a clinical value are in my experience very rare. It would be interesting to know from the experience of the physicians whether anæmia is any less common than it used to be.

I think that it may be possible that faecal concretions are helped to form by this ingredient of flour, but it is not possible to say much on the subject. I have submitted several concretions to

the chemist for examination, but the result of examination for iron is negative; there appears to be very little in them.

The question of the influence of roller milling in the causation of appendicitis is one which has interested me for some years. Facts are accumulating to show that it is a serious factor, but this is not the occasion on which to consider it. There is, however, very little doubt that in addition to the small sharp particles which result from the disintegration of the fluting of the rollers, and which sometimes cause localised ulceration of the mucous membrane, there is a considerable amount of "iron dust," which is given out in such quantities that in certain individuals it can produce an actual blackening of the mucous membrane over extensive portions of the large bowel. This pigmentation is more extensive than could be produced by blood extravasations, and is more uniformly diffused.

Harley-street, W.

THE THEORY OF SALICYLATE THERAPY IN RHEUMATIC INFECTION.

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ANY theory formulated to explain the action of the salicylate group of drugs in acute rheumatism has one great difficulty to overcome. It is briefly this. In some rheumatic manifestations, notably arthritis, salicylate is so successful in its action as to suggest strongly that the drug has an inhibitory power over the activity of the infecting organism; while in others, particularly chorea and carditis, such a power is by no means obvious. It is this so-called "selective" action of salicylate on the various manifestations of rheumatism which is responsible for the variety of views held upon its method of action.

In a recent paper¹ I studied some of the practical objections which have been urged against the use of salicylate as a "specific" remedy in acute rheumatism, but purposely refrained from discussing the truth of the theory on which it is based. Here it is intended to support this "specific" theory, using the word "specific" as implying that the drug has the power of diminishing the activity of the rheumatic infection; the argument adopted being that this theory becomes acceptable when, but only when, the method by which the rheumatic infection produces its various results is properly understood.

Modus Operandi of Rheumatic Infection.

The modern view of rheumatism is that it is due to an infection by a particular type of micro-organism. This can be supported on strong clinical grounds as well as by the results of bacteriological research which are still unaccepted by some authorities. How this infecting organism produces its results has been made clear by the histo-pathological researches of Coombs,² supplementing earlier work of Poynton and Paine and others. He finds evidence that rheumatic infection is a bacteraemia which results in three sets of tissue changes: 1. Interstitial inflammatory changes of a peculiar and characteristic type in the organs attacked by the infection. 2. Parenchymatous toxic changes from toxins produced from foci of infection,

either local or distant. These changes reach their maximum significance where important tissues, such as the cerebral cortex or myocardium, are involved. 3. Sclerotic changes connected with healing processes.

Modus Operandi of Salicylate Treatment.

It is evident that a drug possessed of the power of diminishing the activity of the rheumatic infection could not control these three sets of tissue changes with equal success. 1. The inflammatory processes should be well under the control of an antirheumatic drug. Assuming that the foci of infection were open to the drug circulating, its only limitations would be concerned with the virulence of the infection compared with the amount of the drug which could operate. 2. The toxic parenchymatous changes, on the other hand, could not be under the direct control of the drug. All that such a remedy could do here would be to cut short the supply of toxin at its sources, and thus prevent further damage. 3. The sclerotic changes obviously cannot be influenced by an antirheumatic drug, and need not be further discussed.

Clinically, then, salicylate, if possessed of a specific antirheumatic power, would control such rheumatic manifestations and symptoms as are dependent upon active inflammatory processes, but could only indirectly influence those dependent upon toxic parenchymatous changes. I must now review the chief rheumatic manifestations, attempting to show that their reaction to salicylate conforms to this theory.

Arthritis.—The histological changes here are those of acute inflammation of the infected tissues within and around the joint. Toxic parenchymatous changes are of minimal importance here, as there are no "noble tissues" whose degeneration might produce symptoms. Under salicylate treatment there is a rapid subsidence of the local signs of inflammation together with a fall in general temperature. This last is of special importance, particularly when it is remembered that such a fall in temperature is not produced so markedly nor so constantly in any other infection, and therefore cannot be due merely to the slight general vasodilatation caused by salicylate. A fall in temperature, occurring in conjunction with local amelioration and general constitutional improvement, is generally held to be the best evidence of diminished bacterial activity, and it is certainly difficult to account for the success of salicylate in the treatment of rheumatic arthritis except by allowing a specific antirheumatic action to the drug. Another result confirms this view—namely, the way in which salicylate puts a stop to the development of arthritis in other joints which is so characteristic of the untreated infection.

There is one limitation to the successful action of salicylate on rheumatic arthritis—that concerned with large effusions. These may remain for a week or so before disappearing, even though the temperature has fallen and the other local signs have cleared up. The fluid obtained, however, from a joint at this stage will be found not only to be sterile but to show practically no cells. It shows, that is to say, no signs of bacterial activity, and it is evident that no antirheumatic drug could have an action upon such an effusion. Its absorption is necessarily and mainly a matter of time.

The action of salicylate on rheumatic arthritis shows well how the drug successfully controls such symptoms as depend upon bacterial activity, and

fails to control such as persist after all signs of such activity have passed. The antirheumatic action of salicylate is seen at its best in rheumatic arthritis because it is here that the symptoms due to inflammatory change are at a maximum, and those due to toxic parenchymatous change at a minimum.

Chorea.—In chorea we have histological evidence of two sets of changes in the central nervous system: (a) perivascular inflammatory changes from the presence of infecting organisms; and (b) toxic changes in the cells of the cerebral cortex. Before discussing the action of salicylate we must consider how far each of these sets of changes is responsible for symptoms in cases of chorea.

In certain acute febrile cases it is clear that we are dealing with an actual infection of the central nervous system. Poynton and Holmes² have produced post-mortem evidence of this, which has been corroborated by Coombs. It is also confirmed in some non-fatal cases by the discovery of streptococci and cells in the cerebro-spinal fluid during the acute stage of the disease. On the other hand, it is probable that many slight cases of chorea are due to a rheumatic cerebral toxæmia rather than a cerebral infection. Of much more importance, however, is the recognition of the fact that the nervous symptoms of chorea may persist long after all rheumatic bacterial activity has ceased either in the brain or elsewhere, being dependent upon the damage already done by the infection to the cerebral cortex. That this is the case is shown by the normal (or subnormal) temperature and the normal cerebro-spinal fluid in many cases still showing the nervous symptoms of chorea.

No antirheumatic drug, therefore, can put an end to choreic movements. The most it can do is to diminish the activity of the infection, relieving such symptoms as are directly dependent upon such activity, and thus to limit the supply of toxin which damages the cerebral cells. These latter are then in a position to undergo repair, which when accomplished relieves the nervous symptoms. The fact, then, that salicylate cannot "cure chorea" in no way invalidates the theory that it has the power of diminishing the activity of the rheumatic infection. Indeed, the generally accepted view that salicylate is useful in chorea where signs of active infection (fever, pains, arthritis) are present is in accordance with this theory. When these have ceased salicylate, no matter in what large doses, can do no more to check movements, and at this stage treatment should aim at restoring the structure and function of the cerebral cells by rest, feeding, re-education, and such measures.

Carditis.—Here again we find two sets of tissue changes: inflammatory changes in the valves, pericardium, and interstitial tissue of the heart muscle, with toxic parenchymatous changes in the myocardium. Of these it is now generally recognised that the latter are productive of most of the ordinary cardiac symptoms, the inflammatory changes producing such symptoms as fever, friction, and possibly certain murmurs. The usefulness of salicylate, however strongly antirheumatic its action may be, will therefore be limited in carditis as in chorea. We cannot expect it to relieve the symptoms due to myocardial degeneration any more than we can expect it to remove the signs of mitral stenosis; on the other hand, we must expect evidence of its power to diminish the activity of the infection in the heart and the symptoms dependent upon it.

Such evidence will be forthcoming to anyone who has used salicylate to test this particular point. But very convincing cases are not numerous, because in children most cases of acute carditis show evidence of severe toxic myocardial degeneration, and in adults many are associated with a severe failure of myocardial power. Perhaps the most striking cases are seen in adults who, with a recent history of rheumatic arthritis, show fever, a quickened pulse, and a mitral bruit without much cardiac dilatation. In such cases, which appear to be examples of acute carditis in which the inflammation is acute but the parenchymatous changes slight, salicylate successfully reduces the temperature to normal and puts an end to the infective process. Similar results may sometimes be seen in first attacks of endo- or peri-carditis in children where there is no considerable dilatation of the heart. Even where the myocardium is severely degenerated the patient's temperature will often react to salicylate treatment if well tolerated, but this will not be associated with any immediate relief to the symptoms of cardiac dilatation.

This inability to cope with the myocardial degeneration and the symptoms thereof constitutes the first limitation to the practical use of salicylate in cardiac rheumatism. But there is a second, again associated with the state of the heart muscle. I have shown elsewhere¹ that the amount of vomiting produced under salicylate treatment depends much more upon the state of the heart than upon the dose of the drug employed. Where the heart is only slightly affected vomiting is only troublesome in 4 per cent. of the cases, and now that the proper methods of administration are better understood practically should not occur. On the other hand, where the heart is much affected, particularly where it is severely dilated, troublesome vomiting occurs in about 30 per cent. of the cases, and in a large proportion of these is directly attributable to the drug, even though very small doses are employed.

Nodules.—These consist of macroscopic collections of inflammatory products, probably the results of bacterial emboli in end-arteries. We cannot tell how long a nodule may be expected to remain, so that we cannot tell if salicylate directly hastens their absorption. In investigating the theory of salicylate action the matter of rheumatic nodules does not assist us. All that one can say is that if salicylate can put an end to rheumatic activity it is probably doing all that is possible to hasten the disappearance of nodules. I have elsewhere¹ discussed nodule formation as a rheumatic relapse under salicylate treatment.

Pyrexia.—As in other infections the temperature in rheumatism is a most important index to the activity of the infection. The fall in the temperature in the rheumatic arthritis of adults, coinciding as it does with marked local and general improvement, gives the strongest support to the specific claim of salicylate.

On the other hand, there is often seen, particularly in cases of cardiac rheumatism, a "saw-like" temperature with about 2° difference between the morning and evening readings, the latter reaching 101°–2° F. This is sometimes referred to as the fever of the "rheumatic state," but it denotes, I am convinced, some activity on the part of the infection. It is often stated that salicylate does not control this type of rheumatic pyrexia, but in my experience it is usually satisfactorily modified by

an increase in the daily dose of salicylate to, say, 100-120 gr.

In more severe cardiac cases, where there is evidence of advanced myocardial degeneration, a different form of temperature is often seen. It is characterised by being very irregular, usually keeping below 100°. How far this is dependent upon bacterial activity it is difficult to determine; possibly in many cases it is due rather to the absorption of toxic material from degenerated myocardial cells. At all events, salicylate has seldom any beneficial action here even when used without causing symptoms of intolerance, which are so quickly aroused in cases of this type.

In practice I have come to lay stress upon the regularity or "saw-like" feature of the temperature. Where this is absent and the temperature is seldom above 100°, I think severe cardiac cases are little benefited by salicylate, and may easily be harmed by it if nausea or vomiting be induced. But where the temperature is persistently raised at night, even though the evening temperature is quite low, I prefer to continue with salicylate if possible, as I think that under these circumstances there is some smouldering activity of the infection present. My chief reasons for this conclusion are: (a) that this type of temperature usually develops from a similar saw-like temperature of higher grade; (b) that relapses of pyrexia are frequent; and (c) that the patient's improvement is seldom satisfactory until this type of temperature ceases.

In some instances rheumatic hyperpyrexia can be reduced by salicylate, but here it is evident that we are dealing with an extremely virulent infection and with usually but little time in which to attempt to control it.

Taken as a whole, therefore, and with due allowance for the difficulties connected with parenchymatous cell changes, the action of salicylate upon the pyrexia of the rheumatic infection is in accordance with the theory that the drug has the power of diminishing the activity of the infection.

Tonsillitis.—Acute rheumatic tonsillitis appears to react well to salicylate treatment. The chronic forms, in which the organisms are buried deeply in the glandular crypts, cannot be expected to be much under the control of any drug circulating in the blood stream. This is of importance, since histological evidence suggests that in human rheumatism there are repeated reinfections of the blood. If these come, as is commonly assumed, from the tonsils, it is evident that an antirheumatic drug, if it could not destroy the organisms at their source, could only do so after they had gained access to the blood stream. This perhaps explains some of the relapses that may occur in patients recently under salicylate treatment or while the drug is being given in small doses.

Other manifestations.—Acute rheumatic nephritis and bursitis, both probably due to local infection, react well in my experience to salicylate. Rheumatic anæmia, on the other hand, is a toxic change and can be only indirectly benefited by the drug. It is noteworthy that this state is not improved by the administration of iron until the activity of the rheumatic infection is at an end. True rheumatic rashes are so irregular in their appearance and disappearance that the effect of salicylate upon them is hard to judge. Erythema nodosum and the so-called peliosis rheumatica I do not regard as truly rheumatic. "Rheumatic iritis" is excluded from the rheumatic group by many authorities, with whom I am inclined to agree.

Other Theories of Salicylate Action.

The "specific" theory of salicylate action in rheumatism which I have supported above is probably widely held, although possibly not always with a just appreciation of exactly what it entails. On the other hand, it is well known that some of those most interested in rheumatic problems are strongly opposed to this view, and it is therefore necessary to examine briefly opposing theories.

Antitoxic theory.—A. E. Garrod¹ has suggested that salicylate possibly possesses the power of neutralising rheumatic toxin rather than of attacking the infecting agent. Thus he writes:—

Can it be that they [the salicylates] exercise an antitoxic rather than a bactericidal action? It must be granted, as Professor Stockman has pointed out to me, such a conception finds no support in the established facts of pharmacology, and that no parallel example can be quoted of a neutralising effect of a simple chemical compound, administered as a drug, upon bacterial toxins; but neither can any other instance be adduced of such selective influence of a drug upon certain of the manifestations of a disease of bacterial origin.

F. J. Poynton² seems to favour a somewhat similar view, more elaborated. Thus:—

I believe the bacterial poisons are so subtle that they vary with the tissues in which the lesions occur, and I think it probable that salicylates may possibly be specific to some of them and not to others.

In addition to the difficulty already quoted by Garrod, an important argument against the truth of this antitoxic theory lies in the fact that it is diametrically opposed to the evidence afforded by the histo-pathology of rheumatism. As I have attempted to show, it is those symptoms which are dependent upon inflammatory processes that are well controlled by salicylate, while those due to toxic parenchymatous changes are comparatively unbenefited. It would therefore seem that a bactericidal rather than an antitoxic action would best explain the "selective influence" of the drug.

Partial-specific theory.—This view, for which I cannot find a more satisfactory name than that given, is widely held. A couple of quotations will demonstrate the theory. A. F. Voelcker³ writes: "We are not justified in regarding the salicylates as a specific for any and every rheumatic affection." Again, A. Abrams⁴ writes: "Salicylates have a specific action only on the articular manifestations."

We must here pause to remind ourselves that the term "specific" may be applied to a remedy in two senses. It may be employed as meaning merely "peculiarly efficacious." Used in this sense, although the above statements become defensible, they are of little theoretical interest since no explanation of the drug's action is attempted. Employed, however, in connexion with a remedy for an infective disease, the term "specific" is usually meant to express that the drug has a bactericidal power of some sort over the infecting agent. Used with this meaning any "partial specific" view becomes full of difficulty. For if the modern view of rheumatism as a definite infection attacking various organs of the body be correct, it is clearly illogical to presume a bactericidal action on the organisms attacking one part of the body and to deny it to those producing similar lesions elsewhere. The only explanation of such a selective action would be that in some organs the foci of inflammation become "closed" (as in tuberculosis) and thus unapproachable to a circulating drug, and of such a process there is no histological evidence; indeed, the inflammatory foci appear closely connected with dilated vessels.

The only possible alternatives to the specific view would appear to be either the "antitoxic theory" already considered or the "non-specific theory" to be discussed immediately. Poynton, who admits the difficulty, is drawn to both alternatives, but apparently is not well satisfied with either. To quote the passage in full⁵:—

I do not dispute that some rheumatic lesions, notably arthritic and muscular pains, are greatly relieved and the temperature is lowered by these drugs, but further than that I am not prepared to go. How can such a position as mine be justifiable? I believe the bacterial poisons are so subtle that they vary with the tissues in which the lesions occur, and I think it probable that the salicylates may possibly be specific to some of these poisons and not to others. I am even tempted to feel that their specific action upon rheumatic arthritis is perhaps overrated, for I have seen other acute forms of arthritis relieved by them. It does not follow, I think, because acute rheumatic arthritis subsides rapidly that it is the salicylates which produce this subsidence though they may relieve the pain

Non-specific theory.—It might be logically held that salicylate has no power to control the activity of the rheumatic organism wherever displayed. Some are drawn to this view, although nowhere can I find it very definitely put forward. How far Poynton is prepared to go in this direction has already been shown. L. G. Guthrie⁸ may also be quoted:—

Salicylates relieve pain and lower temperature. I do not think they cure rheumatism and am sure they do not avert cardiac affection, ... Drugs may palliate but do not cure either rheumatism or chorea.

Before such a view can be accepted some explanation of the reaction of rheumatic arthritis to salicylate must be forthcoming, particularly in connexion with the fall of temperature, which, when accompanied by local and general improvement, is usually accepted as strong evidence of a lessening activity on the part of an infection. The only alternative to allowing a specific action to salicylate here would seem to be to deny that the drug acts any more successfully upon rheumatic than on any other form of infective arthritis. And this would be against general experience; for, although everyone has seen some lowering of the temperature under salicylate in other infective conditions, yet it is generally acknowledged that as regards its degree, constancy, and permanence the fall of temperature in rheumatic arthritis under the drug is peculiar.

Chemical Support of Specific Theory.

Space will not permit me to do more than refer to Stockman's important article on the Action of Salicylates in Rheumatic Affections,⁹ in which he shows that the antirheumatic power of salicylate and chemically allied drugs depends upon the relative positions of the carboxyl and hydroxyl groups. He writes:—

The action of salicylic acid in acute rheumatism is undoubtedly specific. It is of little or no therapeutical value in other febrile diseases, and it exerts no action on the healthy man from which one could infer its action in rheumatic fever. But besides clinical evidence the chemical evidence points conclusively in the same direction.

Conclusion.

That salicylate has the power of diminishing the activity of the rheumatic infecting agent may be taken as the working basis of salicylate therapy in rheumatism, and the drug should be administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (e.g., tuberculosis). Care must be taken to discriminate between symptoms directly due to

active rheumatic inflammatory processes and those dependent upon toxic parenchymatous changes which may remain long after all bacterial activity is at an end.

Note on dosage.—The temperature chart is the guide to the dose of salicylate to be employed. Used solely with a view to controlling bacterial activity, the effective range of dosage for child or adult is usually from 60 to 120 grains per diem. Less than 1 drachm daily is rarely sufficient; more than 2 drachms need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control may be used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining.

Any dose greater than 100 grains daily should be given, as Dr. D. B. Lees teaches, subdivided into 10 doses in the 24 hours. Large infrequent doses should never be given, particularly in children. Constipation must be avoided. The sodium salicylate should be combined with an equal dose of sodium bicarbonate; I have not found the double quantity of soda necessary in doses of this grade. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise.

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Harley-street, W.

DRY CUPPING IN LARYNGEAL AFFECTIONS.

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FOR some time I have been using dry cupping of the external surface of the larynx and adjacent area of the neck with very beneficial effect in some laryngeal affections, but I can find no record in laryngeal literature of its employment for this class of disease. That dry cupping should not have been used for the relief and amelioration of laryngeal trouble is the more remarkable since it is so readily and so easily applied, and the anatomy of the parts, particularly the blood-supply, lends itself advantageously to such treatment.

The best and most easily worked apparatus for regular and systematic dry cupping is a suction apparatus (tankless), an American instrument, the agents for which in this country are Messrs. Rouse, of Wigmore-street. There are two sizes of this machine, the No. 20, with three cylinders suitable for consulting-room work, and the smaller portable one, which I have found quite sufficient and most useful at the bedside. I have had cups made of various sizes and shapes for adaptation to the front and sides of the larynx, and have found it best to have the edges of the cups covered with rubber so that any inconvenience the patient might feel when the suction is strongest may be minimised. Some of these cups are half-moon shaped, others horse-shoe shaped. Suction can be applied effectively to one or both sides of the larynx simultaneously. There is an adjusting mechanism on the instrument by

which the suction force can be varied from an equivalent of 5 to 100 lb. air pressure.

The vascularity of the larynx is favourable to the process of dry cupping, as the vessels enter and pass out at definite sites. There are two chief and two subsidiary sources of arterial supply, and the veins and lymphatics accompany the arteries almost exclusively. The box of the larynx, chiefly made up of the two wings of the thyroid cartilage, has no vessels perforating its immediate sides, but they pass into it above and below. Above the superior laryngeal arteries pierce symmetrically the thyro-hyoid membranes, being branches of the superior thyroid arteries. Having entered the interior of the larynx they spread out like the roots of a plant in the submucous tissue of the inner laryngeal lining. These branches are mostly directed to the posterior aspect, and in the lower half of the area of the thyroid cartilage meet similar ramifying branches coursing up from below—viz., those of the inferior laryngeal artery, which has similarly pierced a membrane, the crico-thyroid. The inferior laryngeal artery is a branch of the inferior thyroid and also has its intralaryngeal branches directed to the posterior part of the lining of the larynx. While the superior laryngeal veins follow closely the same artery, the inferior laryngeal veins chiefly join the more centrally situated inferior thyroid veins. The subsidiary vessels are the crico-thyroid arteries, one on each side, which spread inwards from the superior thyroid arteries as they pass down to the thyroid body. These two small vessels run in horizontally from each side on the crico-thyroid membrane and meet and anastomose in the middle line. Branches pass from them through this membrane and spread out freely in the lining of the anterior aspect of the larynx. There is in this manner a special blood-supply given to the anterior part of the lower region of the larynx which compensates for the large distribution of vessels at the posterior part, to which the superior and inferior laryngeal arteries are mainly directed. The lymphatic vessels similarly pass through the membranes above and below the thyroid cartilage, following the blood-vessels more or less closely. Those accompanying the superior artery go into the superior deep cervical lymphatic groups of glands, while those with the inferior pass to the inferior deep cervical glands. There are other lymphatic vessels which pierce the crico-thyroid membranes directly and join small lymphatic glands lying on the surface of this membrane. No vessels, either arterial, venous, or lymphatic, pierce the wings of the thyroid cartilage.

The anatomical arrangement of these arterial, venous, and lymphatic vessels has an important bearing on the application of dry cupping. It indicates that for the most effective relief of vascular and œdematous congestion of the interior of the larynx the cups must be correctly placed anatomically to get the maximum result. The cups should, therefore, be applied over the posterior half of the thyro-hyoid membrane and over the crico-thyroid membrane both laterally and in front. In this way there can be brought about a lessening of intralaryngeal congestion, both by retarding the entrance of blood and by facilitating venous and lymphatic circulation outwards, and so relieving venous and lymphatic engorgement.

I append brief notes of four cases.

CASE 1.—The patient, a man of middle age, was sent to the clinic by his medical attendant on account of difficulty of breathing. He was found to be suffering from well-marked

inspiratory dyspnoea, especially on lying down and on exertion. On inspecting the larynx the vocal cords and their movements were found to be normal, but a subglottic swelling was seen on the left side bulging into the air-passage. There was some tenderness on pressure over the left thyroid cartilage and a fulness filling up the hollow in the lower part of the inferior carotid triangle. He was taken into the hospital at once, as some of the dyspnoea attacks had been so severe that there seemed a likelihood of tracheotomy being required. Dry cupping was used, the cups being placed on the left side over the thyro-hyoid membrane, on the front of the larynx over the crico-thyroid membrane, and lower down over the position of the lateral swelling and at the position of the entrance of the inferior laryngeal artery into the larynx. After the first application he expressed himself as feeling more comfortable, saying that he was breathing more easily and that the sense of suffocation had diminished. He was in the hospital some weeks, and learnt to apply the cups exactly and to use the apparatus regularly night and morning for himself. The subglottic swelling became much less prominent, and this seemed to be a result of the cupping. It was subsequently found that Wassermann's reaction was positive and he was put on potassium iodide, when he still further improved.

CASE 2.—The patient, a man aged 22 years, suffering from well-marked laryngeal tuberculosis, came to the hospital complaining of difficulty of breathing and swallowing, and of pain in the throat. The epiglottis and vocal cords were seen to be swollen and ulcerated, and the arytenoid apices infiltrated, red, and inflamed. Dry cupping was made use of over the crico-thyroid and the thyro-hyoid membranes on both sides and at the lower and lateral parts of the larynx. The pain was much relieved, and he swallowed a glass of milk with greater ease than he had done for a very long time. The dry cupping is being applied every morning at the hospital, where he is now under treatment.

CASE 3.—A man, aged 32 years, who worked in a dusty warehouse, had contracted a head cold followed by partial loss of voice and marked hoarseness. On inspection the interior of the larynx was seen to be very congested and somewhat swollen over the ventricular bands, the vocal cords being red. Dry cupping was applied over the usual positions with marked improvement of the hoarseness, and the vascularity of the larynx could be seen to be distinctly lessened. After two more applications the voice became normal.

CASE 4.—A young woman, a private patient, was sent on account of loss of voice and pain deep in the throat (larynx). The vocal cords were seen to be much suffused, but approximated well on phonation. Dry cupping having been applied over three positions on each side, the pain ceased and her voice returned. I think that this was a case of catarrhal laryngitis, but there may have been an element of functional aphonia.

When first commencing the treatment it is well to apply it for a minute only at the longest until one observes the effect on the skin, as some patients, having very susceptible skins, are liable to get ecchymosis. Others, as in the case of these just cited, can bear the cups on the skin for quite five minutes without any visible mark being produced and even a reapplication without the skin becoming very deeply reddened at the site of suction. I have now used the cupping method in a considerable number of cases with good result. This treatment might even be useful in such cases as laryngismus stridulus (laryngeal asthma) in young children where there is a spasm of the muscles of the larynx and vascular engorgement. The mucous membrane of the larynx is thin and closely adherent on the true vocal cords, but more vascular, thicker, and loosely adherent over the other parts. It therefore quickly becomes congested, swollen, and even œdematous, as in acute laryngitis. Dry cupping might be advantageously employed, but I have not yet had an opportunity of trying it under such conditions.

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SOME USES OF STATIC ELECTRICITY IN MEDICINE AND SURGERY.¹

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THE effects of static electricity may be summarised as being chiefly but not entirely mechanical, just as those of the constant current are chiefly due to the carriage of ions by the current, and those of high frequency are chiefly due to its heating effects. Static electricity may be converted into high frequency or into X rays, but in either event it loses its static quality in whole or in part. I do not think any effects due to the carriage of ions can ever be obtained from static electricity. Other therapeutic effects are ascribed to static electricity such as its suggestion effects. There are therapeutic effects of static electricity other than mechanical, to which I will refer more particularly later. I do not know what they are due to precisely, but I am sure they are not due to suggestion.

I will deal first with the mechanical effects and will begin with the static wave current, the most generally useful current there is. An electrode is applied to the bare skin of the patient, who is seated on an insulated platform. Special electrodes are applied to special parts. This electrode is attached by a wire to the positive pole of the machine, the negative pole is grounded, and the machine is started. The spark gap is then opened. If the machine is properly regulated a spark travels across the gap at the rate of 120-200 a minute. In the intervals of the spark the patient is filled like a Leyden jar with static electricity. When the spark crosses over the gap he is discharged at one point, the part with which the electrode is in contact. The effect of this sudden discharge at one point or in one small area is a violent commotion of all the tissues in the neighbourhood of that point. It is, in fact, a deep massage of all the tissues, but intensifying towards the electrode. Theoretically we should expect such a commotion of the tissues to relieve stasis. Practically we can see it do so. If we take a case of simple chronic synovitis of the knee-joint we have an ideal condition in which to study results. In such a case, often in one treatment, usually in three or four, an obvious and marked reduction of the swelling takes place. So impressed am I with the results obtained in these cases that if I did not see and the patient did not feel a marked improvement after three or four treatments I should suspect that the diagnosis was wrong and that I was dealing with a tuberculous joint. Having said and seen that the effect of this treatment is to relieve stasis we have but to ask ourselves, In what pathological states have we stasis? to arrive at a conclusion as to the kind of case in which static electricity is useful.

I do not wish to enter into the pathology of lumbago, sciatica, or brachial neuritis. I am not qualified to do so if I did wish it, but any of you who have been plagued with these troubles know that there is something in the muscles or nerves which ought to be eliminated. This treatment I know from experience in my own case and that of many others will eliminate it.

An enlarged prostate can be reduced and the symptoms due to it relieved. Here are the notes of

a typical case. The patient, aged 57, had had symptoms of enlarged prostate for five or six years; he rose three or four times a night to urinate. There was a very small amount of residual urine. Per rectum the prostate was found to be moderately enlarged, its consistence somewhat firmer than normal. The static wave current is used with a metal rectal electrode which has a concavity which rests against the posterior aspect of the prostate. The part of the electrode opposite the sphincter is insulated. Treatment was given for 20 minutes daily. After eight treatments I have the following note: Patient retired to bed at 10.30 P.M. Got up and emptied bladder at 2 A.M. Awakened from habit and not by his bladder. Did not wake again until 8, when he got up. After 16 treatments he arose once only at 5 A.M. He remarked that his stream was less crooked and stronger. Some of these patients progress to complete alleviation of symptoms; others have to rise once at night instead of four or five times. In a majority of cases there is some improvement.

A subinvolted uterus can be contracted. Dysmenorrhœa is often relieved. I have reduced enlarged livers and enlarged thyroid. An enlarged spleen can be reduced. In rheumatoid arthritis of the knee I have had considerable success; in that of the hip-joint I am sorry to say no success. There is in fact a wide variety of chronic conditions and a few acute ones such as sprains where the static wave current gives good hope of prompt relief.

If, as I believe to be the case, the static wave current relieves stasis by the commotion set up by the interruption of the current, how much greater and therefore more effective must be the commotion set up by the static spark. Here the whole charge resident in the body of the patient rushes to an exit at one small point, the point of exit of the spark. That sparks are most efficient is seen in cases where such indurations as synovial thickenings get softer and less marked from day to day. Unfortunately I must add, however, that I have had no success with them or with anything else in the treatment of the most obvious indurations of all—i.e., those around the knuckles in rheumatoid arthritis of these joints. I believe that failure here may be due to the fact that these joints are too tender to allow of the application of a really effective spark to them.

Another effect, and a very important one, of the static spark is the relief of spasm in muscles connected with inflamed nerves and joints. Sometimes these muscles can be felt to be in a state of spasm; at others the inability to make certain movements discloses it. For instance, I had a patient recently under treatment who could not use his deltoid at all. This was after a fall from a bicycle, when he fell on his hand and doubtless bruised the muscles around the shoulder-joint. After a few sparks applied to the deltoid region he immediately had much more use of the muscles which raise the arm to a right angle. Next day it was as useless as ever and again immediately responded to the sparks, and so again the next day. After the third day the improvement continued. It seems to me that only spasm could account for such immediate recovery and loss of power again next day.

The following is the arrangement of the static induced current. Two Leyden jars are connected by their inner coatings to the two poles of the static machine. From each of the outer coatings a

¹ A paper read before the Hampstead Medical Society.

wire leads to an electrode connected to the patient. On starting the machine and separating the discharging rods the patient is subjected to powerful oscillatory discharges from the jars. I use this current chiefly for the treatment of another form of stasis about which we hear much—intestinal stasis. With one jar attached to a rectal electrode and the other to an abdominal a powerful current passes between the two, and that it causes contraction of the unstriated muscle of the intestine is shown, I think, in the resultant relief of the constipation which is often obtained. Not all cases of intestinal stasis can be relieved in this way. I have, however, cured one case of 25 years' standing with colitis of five years' standing. Until she had this treatment the patient had had no normal evacuation of the bowels for 25 years. Other cases have done well. Failures, however, occur. In one subsequently operated on by Sir Arbuthnot Lane the patient told me that the large bowel, which was removed *in toto*, was in a very diseased condition and quite incapable of recovery. When I saw him last he was feeling quite well and was about to proceed to the front.

Another use of the static induced current is to stimulate muscles which have degenerated from one cause or another, as in cases of anterior poliomyelitis. I believe it is more efficient for the purpose than faradic or sinusoidal. The mechanical effects of static electricity are obtained even when the current is broken up, if I may so describe it—that is, when the electricity instead of travelling in a massive spark is broken up into a spray as in the static brush discharge, or is broken up in another way as in vacuum tubes, glass tubes, that is, in which there is a partial vacuum. The static brush discharge is used for treatment of stasis in parts which are too sensitive either from inflammation or locality to permit of the use of the wave current. A gouty toe, for instance, is sprayed for half an hour with manifest relief resulting to the patient. In treating a varicose ulcer the effects can be watched. At first as the current is applied some blanching of the skin takes place. This must be due to a preliminary contraction of the arterioles due to stimulation of their muscular coats. Soon relaxation follows, and a more permanent reddening of the skin results. As we watch the ulcer we see an exudation of plastic lymph appearing on the base, and after half an hour's treatment I usually derive the impression that the ulcer is smaller and more shallow. However that may be, the patient will usually tell you next day that the pain is better, and after a shorter or longer series of treatments healing takes place. This current is most useful in the treatment of chilblains, æcne, and I once used it with gratifying success in a case where a hypertrophied, scaly condition of the skin followed on a prolonged irradiation with radium. The discharge breaks up the air into ozone and nitrous oxide, both of which are antiseptics.

The vacuum tube discharges are used when we wish to obtain an effect stronger on the one hand than the static brush discharge effects, and weaker than the static wave current. They are particularly useful in searching for tender points in a case of neuritis. These, if not too deep, are quickly detected by this means. In the treatment of neuritis of the supra-orbital or infra-orbital nerves the vacuum tube is very useful, as also in the treatment of æcne, herpes zoster, and other skin conditions. Specially shaped vacuum tubes are

used in the cavities of the body, some for rectal use for fissures and inflamed piles, others for vaginal, urethral, and so on.

I mentioned at the beginning of this paper that there were other therapeutic effects of the static currents which I could not explain as being due to mechanical causes only. First there is the sensation of well-being derived from treatment by the static wave current by a certain number of patients, but not by all. This is quite well marked, and a patient who feels these effects will probably refer to it without being asked. Patients certainly retain a part of the charge after treatment ceases, as is shown by the fact that one can sometimes get a spark out of them, and I suppose this extra charge suits some people. In addition, there is an increase of the urea output in the urine, so that I suppose metabolism is increased. There is also the deep massage effect above referred to. More important effects are those derived from the static bath. In this the patient is seated in a chair on the insulated platform, which is connected to the negative part of the machine, the positive being grounded, the spark gap is opened wide and the machine run slowly. The patient has no sensation except of a gentle breeze or of the hair standing on end. From 20 minutes to half an hour of this treatment is most soothing to the nervous system, leads to quiet sleep in those suffering from insomnia, and is generally useful in quieting down people who have been worked up by worries and anxieties or who are suffering from nervous irritation due to other causes. I use it, for instance, on patients who have complained of sleeplessness or too much exaltation following on treatment with the static wave current. Lastly, the most useful application of the static brush discharge is its application in cases of neurasthenia. People who are depressed, cannot sleep, suffer from dyspepsia, are anxious, easily tired, worried by business, &c., are they to whom this treatment is applied.

The brush discharge is applied up and down the spine for 20 minutes to half an hour daily for two weeks. In the second week an amelioration of the symptoms begins, and then the treatment is intermitted, given three times a week, then twice, and finally stopped. Sometimes it works like a charm. I remember a lady who had a headache daily and a severe headache which necessitated retirement to bed every two weeks. She began treatment, I recall, just before Derby day, and had a violent headache after seeing the Derby at which a suffragette was killed. She had the course of treatment above outlined, but somewhat interrupted by social duties. I saw her in the following October, and in the whole of that interim she had had no headache that a dose of acetyl salicylic acid would not arrest, and very few of them.

I conclude, then, that we have in the various applications of static electricity methods of treating a variety of conditions, medical and surgical, not all of which do well under the ordinary methods of treatment in vogue.

Welbeck-street, W.

LITERARY INTELLIGENCE.—The Cambridge University Press announce for early publication the third edition of Shipley and Macbride's "Zoology," which has been thoroughly revised and in parts rewritten. The newer discoveries in the laws of inheritance are dealt with in the introduction and there are many new illustrations.

CONGENITAL LYMPHANGIOMA SITUATED OVER THE STERNUM.

By JOHN A. C. MACEWEN, M.B., C.M., B.Sc. GLASG.,
F.R.F.P.S. GLASG.,

SURGEON TO THE ELDER HOSPITAL; ASSISTANT SURGEON, GLASGOW
ROYAL INFIRMARY; SENIOR ASSISTANT TO THE REGIUS
PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW.

IN THE LANCET of July 19th, 1913, a case of large dermoid cyst occurring over the sternum was reported by me, and the one now to be described resembled it in situation and in being congenital and cystic, but the patient was younger and the appearance of the tumour very different.

The patient, a girl aged 8, was admitted to the Elder Hospital in September, 1913. Her mother stated that she had a birthmark of about the size of a bean, which had always been white and soft until recently, and which was situated over the sternum. A few weeks prior to admission the tumour first became hard and of a blue colour, and then rapidly enlarged, becoming red and inflamed as it did so. On admission a large cystic tumour was seen, situated in the middle line, over the sternum, commencing about 3 inches below the episternal notch, and extending downwards a distance of $3\frac{1}{2}$ inches. The tumour was pear-shaped, with the stem directed downwards and inclined to the right side; its greatest breadth was $2\frac{1}{2}$ inches, and it projected fully an inch from the surface. That it was cystic was apparent on superficial examination, and tense fluctuation was marked. On close inspection the skin over the tumour, which showed no evidence of inflammation, was found to be thin and stretched, and it was seen to contain small superficial bluish pearl-like cysts in places. The condition was painless and did not occasion any marked discomfort.

An operation was performed on Sept. 24th. An oval incision was first made so as to remove the area of affected skin. On carefully deepening the incision a sac wall was seen, which was thin, pearly, and translucent, and which contained fluid, the appearance strikingly resembling that of the tunica vaginalis testis when exposed in the operation for hydrocele. An attempt was made to remove this sac entire, but it was firmly adherent to the subjacent tissues, and, unfortunately, ruptured when almost freed, several ounces of clear amber fluid escaping. The tumour extended down close to but did not involve the sternum. The wound was stitched up, and the child made an uneventful recovery.

On examination of the tumour it was found that while the largest cyst had been ruptured, there were a few much smaller ones also present, in addition to those in the skin itself, which have already been referred to.

Dr. J. Anderson, pathologist to the Victoria Infirmary, Glasgow, very kindly made sections from various parts of the tumour, and reports as follows:—

The epidermis is very variable in thickness and in outline, small papillary projections appearing at places. The horny layer is scanty, and the Malpighian varies as to thickness and interpapillary processes. In one section a small cyst is seen in the epidermis, resembling an eruption cyst, which presents an endothelial lining and thin fibrous wall, and is supported by cells of the Malpighian layer to the inner and of squamous to the outer aspect. The contents are mucinous and present several lymphocytes. The true skin is atrophied as a whole, although apparently increased as compared with

the Malpighian layer, and the apparent increase is added to by the presence of inflammatory proliferation of connective tissue and a few lymphocytes. There is a scarcity of glands generally, and particularly of sebaceous glands. Small mucinous areas, cyst-like in character, are seen in the deeper layers of the corium, often surrounded by inflammatory foci, and slightly larger cysts of the same character are found in the fatty tissues. Some of these cysts present marked hæmorrhages from their walls into the interior. The fatty tissue is, as a whole, well represented, and at places there are hæmorrhages into it, and also inflammatory infiltrations of the stroma. The margin of the large cyst presents a well-defined wall composed chiefly of fibrous tissue, but containing a little unstriated muscle fibre, and is richly vascular, the vessels in places being engorged. It is lined by flattened endothelium. I consider the condition as one of lymphangioma.

Glasgow.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

AN EXTRAORDINARY ACCIDENT.

By T. O. THOMPSON, M.B., B.Ch. OXON.,

LIEUTENANT, R.A.M.C.; FORMERLY CASUALTY HOUSE SURGEON,
RADCLIFFE INFIRMARY, OXFORD.

THE patient, a man aged 34, was admitted into the Radcliffe Infirmary, Oxford, on Jan. 28th, 1914. He had fallen 7 feet off a haystack on to a pointed handle of a hayfork, which produced a wound 3 inches long in his scrotum. This did not appear to extend beyond the skin and dartos muscle. He complained of pain in the right side, but no lesion or any bruising could be found on the right side or the arm. Two days later the pain was less severe, fomentations having been applied. On the next day pain at the right nipple was felt on coughing, and breathing friction rub was heard. The breath sounds were not affected, and there was no obvious dullness on percussion.

Three days later the patient developed a fluctuating area under the right pectoral, which on evacuation contained purulent blood effusion and two pieces of straw 3 inches and 6 inches long. This area was drained freely and the patient improved. Two days later another subcutaneous abscess formed mid-way between the right nipple and the right side of the scrotum. This was opened and drained, and proved to be a long purulent track. Later a piece of hay was removed from each abscess cavity. The patient continued to become worse, the temperature rising and the respirations becoming more rapid. An extensive œdema of the anterior chest wall occurred with an inflamed area internal to the right nipple. This was freely incised but no pus was found. The patient developed bronchopneumonia and died.

A post-mortem examination showed a complete subcutaneous track from the wound in the right side of the scrotum to the infraclavicular region, with putrefaction along the whole track, and under the pectoralis major a cavity in the same condition in which were found wedged in one corner a piece of tweed cloth from the man's trousers and some straw and hay. There was inflammation of the right side of the neck and lower face and the whole anterior chest wall. The second rib was fractured and osteomyelitis was present. The spleen was almost fluid, while the heart was flabby. There was pleurisy, with solid œdema of the lower lobe of

the right lung; and on the left side (three lobes) pleurisy and early broncho-pneumonia.

This case seems to show a remarkable accident. The pointed broken handle of a pitchfork pierced this man's scrotum; it was deflected by the pubic bone into the anterior abdominal wall and so on into the chest wall. He must have doubled himself up when the point was in the abdominal wall, thus causing it to pass anterior to the ribs, through the pectoralis major origin, and finally to stop at and break the second rib, where it deposited the cloth and hay. At the inquest evidence showed that a fellow workman pulled some 2 feet of handle out of the man's body. The patient then "walked" three miles home and drove ten miles to the hospital. Presumably the correct treatment would have been to lay open the whole track, but there was no evidence until the formation of the abscesses that the fork handle had made any further injury than that in the scrotum.

A SIMPLE SPLINT FOR FRACTURES OF THE UPPER EXTREMITY.

By M. W. B. OLIVER, M.A., M.B., B.C. CANTAB.,
F.R.C.S. ENG.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

THIS splint has been devised for the treatment of compound fractures of the upper extremity, and it is especially useful in cases where there is an extensive wound requiring much dressing. It is also extremely useful in cases of simple wounds in which there is no fracture. The splint consists of a horizontal wooden bar supported by an upright at

The advantages of the splint are: 1. It is very simple and can easily be made by any carpenter. 2. The patient is made very much more comfortable, as with the arm sling he is able to move his body without interfering with the position of the arm. 3. Extension can be applied very easily. 4. The dressing of the wound is very much simplified and is less painful. This splint is a modification of the "Balkan" splint, which was devised for the treatment of fractures of the lower extremity, and has been used in this hospital with very satisfactory results.

No. 13 General Hospital, British Expeditionary Force.

THE REMOVAL OF A SEBACEOUS CYST UNDER SUGGESTED ANÆSTHESIA.

By J. W. ASTLEY COOPER, L.R.C.P. & S. EDIN.,
L.F.P.S. GLASG.,

RESIDENT PHYSICIAN AT GHYLLWOODS SANATORIUM, CUMBERLAND.

THE patient had at the time of operation been under treatment for chronic alcoholism by hypnotic suggestion for six weeks. Incidentally complaining of a sebaceous cyst of some years' standing in the skin of the chest over the sternum which was slowly getting larger, I proposed its removal during one of his hypnotic sittings. This was agreed to. I hypnotised the patient and suggested total absence of pain during and following the operation. I then dissected out the cyst (about as big as a large filbert). The wall was strongly adherent, and had to be torn away piecemeal at one spot; to ensure its destruction I subsequently swabbed out the



Illustrating the splint for fractures of the upper extremity.

each extremity of the bed. The arm is suspended from the horizontal bar by means of flannel slings. In place of these a gutter splint of perforated zinc suspended by cords may be used. As a rule the flannel bandages are more convenient and facilitate the dressing of the wound. If a fracture is present extension may be applied as shown in the accompanying diagram.

cavity with tinctura iodi. The patient gave no indication whatever of any feeling of pain or discomfort, either during this small but painful operation, or during the subsequent healing of the wound, but on being roused expressed surprise that all was finished and that no pain had been felt.

Ghyllwoods Sanatorium, near Cockermouth.

Medical Societies.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Criminal Abortion and Abortifacients.

A MEETING of this society was held on Jan. 8th, Mr. HERBERT JONES, the President, being in the chair.

Dr. W. F. J. WHITLEY read a paper on Criminal Abortion and Abortifacients. He said that criminal abortion was produced or attempted in one of three ways—namely, by means of violent purgation; by the ingestion of drugs having a real or supposed poisonous action upon the foetus itself or on uterine muscle; and by mechanical interference. The abortion which was unsuccessfully attempted was perhaps more serious and far-reaching in its consequences than that which accomplished its object, for in the latter life was utterly destroyed and in the former it was maimed and disfigured at its very inception, and the infant when born was frequently puny, undeveloped, and devoid of resistive power. There was strong evidence that in this country the commonest way of attempting abortion was by repeated, regular, and systematic purgation. Among the drugs having a real or supposed poisonous action upon the foetus itself lead in the form of diachylon took a prominent position. It was taken in the north-east of England in combination with aloes. As a result of inquiries made among chemists and chemists' associations it appeared that diachylon was frequently asked for in the north by the lay public without the prescription of a medical man. At least ten local associations of chemists had passed resolutions declining to sell it. Evidence was forthcoming that herbalists sold the drug and did a regular business as abortionists. Among some of the measures which had been suggested for checking criminal abortion were the scheduling of diachylon as a poison and the notification of pregnancy. Educative measures held out most hope of success, and the greater consideration which was now being given to antenatal hygiene was encouraging. A practical measure might be to make all abortions and miscarriages notifiable to the sanitary authority, and to enforce a pathological examination of the foetus and placenta in every such case.

Dr. W. G. WILLOUGHBY agreed that abortifacients might have a disastrous effect on the health of the child. He feared that the scheduling of a few extra poisons would have little effect in restricting the use of abortifacient drugs. At the root of the whole matter was the fact that a mother was not looked upon with the respect to which she was entitled. People must be impressed with the danger arising from the use of abortifacients, and that if they were used healthy children might not be borne.

Dr. SIDNEY C. LAWRENCE referred to the great difficulty in deciding whether lead or some other drug had been taken prior to an abortion.

Mr. H. H. I. HITCHON said that in the north of England the use of instruments for producing abortion was much commoner than was realised. A first step in stopping the practice was the prohibition of suggestive advertisements which opened the door to criminal practices.

Dr. C. W. HUTT asked what evidence there was that there was any injury to a child born after an unsuccessful attempt to produce abortion. If the statement were incorrect it would do harm.

The PRESIDENT agreed that some steps should be taken to prevent the appearance of the advertisements of abortioners, and pointed out that abortifacients could be procured with the greatest ease from the very herbalists who were receiving payment from the State for treating patients insured under the National Insurance Act.

EDINBURGH OBSTETRICAL SOCIETY.

Presidential Address.

A MEETING of this society was held on Jan. 13th, Sir J. HALLIDAY CROOM, the President, being in the chair.

The following office-bearers were elected for the present session:—President: Sir J. Halliday Croom. Vice-Presidents: Senior, Dr. G. Keppie Paterson; junior,

Dr. Angus Macdonald. Secretaries: Mr. E. Scott Carmichael and Dr. R. W. Johnstone. Treasurer: Dr. John M'Gibbon. Librarian: Dr. J. Lamond Lackie. Editor of Transactions: Dr. James Young. Acting Interim: Dr. H. S. Davidson. Members of Council: Dr. J. Haig Ferguson, Dr. D. Berry Hart, Dr. H. S. Davidson, Dr. G. Barbour Simpson, Dr. A. H. F. Barbour, Dr. W. Fordyce, Dr. P. G. Borrowman, and Dr. J. L. Green.

The following were elected Honorary Fellows of the society:—Dr. Cullen, Baltimore, U.S.A.; Emeritus Professor Malins, Birmingham; Professor Briggs, Liverpool; and Professor Jacobs, Brussels.

The PRESIDENT delivered his Presidential Address. After thanking the society for the honour of being elected President for the third time, he proceeded to discuss the problems that were likely to occupy the obstetrician of the future. The first problem was that of the scientific pursuits and achievements of women. He passed in review the work of Madame Curie and Madame Henri, giving a résumé of the position which radium occupied in gynaecology. The declining birth-rate was dealt with, especially the investigations of Dunlop, showing the influence of delay of marriage in the size of the family, especially delay on the part of the woman. Figures were quoted which showed, among other things, that comparing the average Scotch family with the corresponding figures for similar marriages 20 years earlier, the decrease in the size of the family was universal; and that for all ages under 36, age 32 excepted, that decrease amounted to more than one child per marriage. He also dealt with the question of the relations between the working mother and the home, as far as the census figures illustrated them. He showed that the mortality of the children of working married women was 62 per cent. higher than in the cases of mothers who were unemployed. He proceeded to discuss serotherapeutics, with special reference to Abderhalden, and cognate problems were dealt with very fully. He laid special stress upon prematernity beds, pointing out their value both from a scientific and a clinical aspect. In conclusion, he dealt with the teaching of midwifery as it is carried out in the Edinburgh School.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Jan. 15th in the Metropolitan Hospital, Dr. David Ross, a past President, being in the chair.—Mr. Henry Curtis conducted a clinical afternoon. In the absence of Dr. E. Cautley Mr. Sylvester showed a boy, aged 14, suffering from Cerebro-spinal Meningitis. On Jan. 6th he vomited and had headache at 3 P.M.; mental confusion and drowsiness. He was admitted on Jan. 7th with headache, groaning, and twitching of hands, chiefly left. He was semi-conscious, both pupils dilated, later on retracted abdomen. Knee-jerk plus; a scabies-like rash. Arms stiff, occasional twitching. Temperature 100° F.; pulse 84; respirations 30. Jan. 8th: Restless night. Anorexia, incontinence; head retracted, tache. Pulse 72; respiration 30 to 36; temperature 100° to 101°. Jan. 12th: More conscious; takes food well; no spots. Injection of 10 c.c. of Merck's serum. Temperature 102° to 103°; pulse 100; respiration 34. Jan. 15th: Melæna with pain over sacrum on two occasions. Temperature 103°; pulse 100; respiration 30.—Dr. A. Feiling mentioned a similar case in which the temperature was 89°, and never rose above 95°. Patient, who was comfortable all the time, died following morning.—Mr. Sylvester showed a man, aged 39, admitted on Dec. 2nd suffering from Hæmatemesis. On Dec. 21st he developed right-sided parotitis. On the 23rd gland subsided, but on the 26th was again swollen. On Jan. 8th pus was seen oozing from Stenson's duct after 1 in 8 acetic acid application to mouth. Jan. 15th, gland still very swollen and painful.—In the absence of Dr. W. Langdon Brown Mr. Sylvester showed the man of 38 years with Aplastic Anæmia shown at last meeting (Case 7); the improvement in his condition is apparent rather than real. The quantity of blood is slightly less, which is associated with a higher colour index and more red cells; the white cells show a higher percentage.—Dr. Leonard Williams showed: 1. A soldier, aged 30, with greatly Enlarged Thyroid of ten years' standing; no signs of insufficiency. After four months at the front the pressure of his equipment caused difficulty in breathing and swallowing. He is improving under thyroid extract and potassium iodide. 2. A girl, aged 19, with Graves's Disease, the exophthalmos being of the flight and fright variety. There

was obvious bulging of the sternum due to enlarged thymus. Dr. Williams here discussed the clinical signs of hypertrophy of thymus. He referred to a complete description by Oelnitz,¹ who divides cases into four groups: (1) those with sudden death; (2) latent forms, with sudden symptoms calling for immediate intervention; (3) silent forms, with intermittent and transitory respiratory symptoms; and (4) forms with continuous manifestations with intermittent symptoms. The symptoms are: (1) dyspnoea, generally with cyanosis; (2) often stridor; (3) epistaxis; (4) malnutrition and cachexia. Physical signs are: (1) oedema of eyelids; (2) exophthalmos; (3) increased tension of fontanelles; (4) persistent facial cyanosis; (5) superficial cervical veins dilated; (6) inspiratory contraction of platysma; (7) asymmetrical arching of sterno-costal articulation, more frequent on right side; (8) enlarged thymus can often be felt beneath the sternum; (9) abnormal percussion dulness in thymic region; (10) auscultatory vascular souffle with head over-extended; and (11) radiographic shadow above cardiac shadow. Dr. Williams quoted Sajous to show that the function of the thymus is to supply through its lymphocytes the excess of organically combined phosphorus or nucleins required, especially by osseous and nervous systems during growth. This theory, besides explaining thymic idiocy, thymic marasmus, and thymic dwarfism and rachitis, explains thymic Graves's disease through the toxæmia induced by excess of nucleins or nucleic acid. In 133 cases of Graves's disease which came to necropsy after operation Matlis found abnormally large thymus in 76.5 per cent. —Dr. Feiling showed: 1. A man, aged 30 years, with very large hands, the feet being normal, teeth regular, and the head flattened and elongated in the antero-posterior diameter. A skiagram showed the pituitary fossa slightly enlarged. There was loss of sensation in the forearms, and heat and cold sensation was lost, much wasting of interossei and thenar muscles, extensor plantar reflexes, and greatly increased knee-jerks. Diagnosis syringomyelia. 2. A man, aged 36 years, suffering from Myopathy of the Facio-scapulo-humeral Form, first noticed 11 years ago. The peculiarity in the case was that although there was a family history it was confined to a paternal grandfather.

Reviews and Notices of Books.

A Text-book of Pathology for Students of Medicine.

By J. GEORGE ADAMI, M.A., M.D., F.R.S., Strathcona Professor of Pathology, McGill University; and JOHN McCRAE, M.D., M.R.C.P. Lond., Lecturer in Pathology and Clinical Medicine, McGill University, Montreal. Second edition, revised and enlarged. Illustrated with 395 engravings and 13 coloured plates. London: Macmillan and Co., Limited. 1914. Pp. 878. Price 25s. net.

THE authors, we think, are amply justified in their contention that the fact that this text-book "has measurably succeeded in its purpose is inferrible from the early exhaustion of the large first edition," which appeared in 1912 and was reviewed in THE LANCET of Feb. 1st, 1913.

The number of pages has been increased from 759 to 878, while 91 engravings and two coloured plates have been added, making the total number of excellently clear engravings 395 and that of coloured plates 13. It seems to us that the whiteness of the paper is more marked, and consequently the printed matter stands out more sharply than in the first edition. Amongst the changes—all improvements—we notice the relegation of the chapter upon monstrosities and abnormalities to an appendix, and a simplification of the classification of tumours. A new chapter on the more important infections and their prominent features has been added. A very useful addition is the syllabus placed at the beginning of each chapter

detailing its contents with page references. The volume is completely cross-indexed. Taking the work as a whole, it is evident that while the facts of pathology have not been neglected, continued emphasis has been placed upon the reasons underlying pathological conditions.

Part I. has been very considerably augmented and improved, and certain rearrangements and additions made. The chapter on regressive tissue changes precedes that on progressive tissue changes. In connexion with the subject of immunity and its "stupendous" literature, we think the authors have exercised a wise discretion in giving a workable plan by which immunity can be understood, based largely upon Ehrlich's views. The additions under the head of surgical shock—not forgetting the contributions of Crile—are valuable and practical. As regards the regeneration of bone, we note that the authors are not as yet prepared to accept the views of Macewen ("The Growth of Bone," reviewed in THE LANCET of March 30th, 1912) and others, who deny that the periosteum plays any part in the regeneration or even in the growth of bone. The results of the cultivation of tissues, known as "growth *in vitro*," find a place. Chapter IV. (pp. 186–258), on the more important infections and their outstanding features, successfully attempts to marshal under one head information on an important subject that in the previous edition was widely scattered. The scope of the new chapter will readily be grasped when we cite the subjects with which it deals—viz., diseases due to lower bacteria, bacilli, higher bacteria, filterable viruses, higher fungi, and protozoa, not omitting the group of diseases classed as spirochaetoses.

Part II. deals with special and systemic pathology, and occupies about half of the text. It must be difficult even for teachers of experience to decide what to include and what to omit. Marked additions and improvements have been made in all the chapters. Perhaps more illustrations would add value to the chapter on the nervous system. As it stands it is none too long. There are several welcome illustrative reproductions of specimens from McGill Pathological Museum. The short but practical account of the bones is well worth perusal and careful study.

The authors, we think, have succeeded in producing a highly attractive volume, at once practical, philosophic, and suggestive. Further, we are of opinion that they have classified the facts and so correlated them that the reflective student not only will be stimulated to add by his own endeavours to the progress of pathology, but also will find that the acquisition of the facts themselves is rendered easier by the plain, straightforward, consecutive and logical manner in which the authors have presented them. The "get up," apart from the subject matter, is excellent.

What is Adaptation?

By R. E. LLOYD, M.B., D.Sc. Lond., Professor of Biology, Medical College, Calcutta. London: Longmans, Green, and Co. 1914. Pp. 110. Price 2s. 6d. net.

IN the preface to this book we are told that it is "not scientific in the usual sense, being influenced considerably by M. Bergson's philosophy," and we learn further from the book itself that the author's biological creed is ultra-mutationist. As an ardent anti-selectionist Dr. Lloyd questions, perhaps correctly, the intellectual honesty of those Mendelians who profess a lingering belief in natural selection as an instrument of organic

¹ Archives des Maladies des Enfants, March, 1911.

evolution. Having stated in a previous book that "adaptation" (that all-important fact in the view of the selectionist) "needs no explanation," he writes the present one to defend this statement by an endeavour to show how the need for such an explanation has arisen and why it seems unnecessary. The author's position, shortly stated, comes to this: Adaptation is the primary attribute of living things, and therefore, as an unadapted thing could not live, it is its own explanation. But there is a resemblance between organisms and mechanisms in that they both possess the attribute of adaptation; and because man, the chief maker of mechanism, does not regard himself actually as life, but holds himself apart from it; he wonders, makes for himself a problem, and says, "How is it that life can produce the same kind of results that I myself can produce?" And so men, impelled by this wonder alone, proceed to invent theories, one of which is that of natural selection.

It may be held that the author's statement of his position is its own condemnation, so great are his misconceptions of the attitude of science towards the search after causes, and so erroneous are the assumptions involved in his position. But, apart from this, he indulges in much word-play in his desire to show that it is unreasonable to seek for any explanation of "adaptation"; and frequently misrepresents the position of those whom he is opposing. Against the selection theory, for instance, he argues that it is "not science" and should not be taught as such because it cannot be appreciated by all, but only by those "who need a final explanation of life." Whether by "final" he means here the *final cause* of life (which words, if correctly used, would stand for the object or purpose for which life came into being) or the *efficient cause* of life and how it arose, his allegation that the selectionist especially must necessarily desire a final explanation of life is hopelessly beside the mark. The scientific man seeks for no final cause, or ultimate explanation of anything; least of all for an ultimate explanation of existence. All ultimate problems are inscrutable and have nothing to do with science. But science can and does seek for answers to questions such as this: By what method has organic evolution been brought about?

It is needless to criticise in detail the chaotic logomachy which marks this book, but its quality may be illustrated by a few excerpts. "The growth of science is different from the growth of man's perceptive ability, which is evolution." "We shall continue to explain life for the very reason that it has no (final) explanation. We shall understand it more and more, simply because we shall never be able to understand it completely." "If the human intellect, which is a part of life, were to understand life, the part would, as it were, grasp the whole, which seems impossible."

The book ends with an advocacy of Bergson's philosophy and of the doctrine of "discontinuity" according to the Mendelians and mutationists. The author, however, says that he has "no wish to urge the reality of discontinuity, but only the practical advantage and necessity of admitting it." In denying that the theory of natural selection is scientific the author revives the old and erroneous charge that the theory is equally teleological with that of special creations. Against all such "teleology" he opposes the theory of "vitalism," from the point of view of which (he says) it is inconceivable that we should know the cause of

life and evolution; and thus he makes short work of biological science. It must, however, be borne in mind that, anti-teleologist and anti-mechanist in one as he professes to be, he espouses the mutationist biology and the Bergsonian philosophy—doctrines which have been widely welcomed either by religious persons to whom natural selection is unpalatable, and who see in mutationism an approximate return to the theory of special creation; or by modern mystics of many colours who frame assumptions and style them discoveries.

The whole trend of the author's dialectics establishes his own statement that this book "is not scientific in the usual sense." We venture to add that it is not scientific in any sense.

A System of Surgery.

Edited by C. C. CHOYCE, B.Sc., M.D. Edin., F.R.C.S. Eng., Dean of, and Teacher of Operative Surgery in, the London School of Clinical Medicine (Post-graduate), &c. Pathological Editor, J. MARTIN BEATTIE, M.A., M.D., C.M. Edin., Professor of Bacteriology in the University of Liverpool, and Bacteriologist to the City of Liverpool. In three volumes. Volume III. With 12 coloured plates, 22 black-and-white plates, and 242 illustrations in the text. London, New York, Toronto, and Melbourne: Cassell and Co., Limited. 1914. Pp. 901. Price 21s. net.

THE third volume of this *System of Surgery* maintains the high level of those that have appeared previously. It deals with important subjects. The account of the surgery of the cardio-vascular system, which is by Mr. Rock Carling, is clear, but we think that it would have been well to say a little more about the surgery of the heart. Mr. J. F. Dobson has contributed the description of the surgery of the lymphatic system, and this chapter includes Hodgkin's disease. Mr. Arthur Edmunds is responsible for the section dealing with the surgery of the neck, including the surgery of the thyroid and the thymus glands. He holds the view that the parathyroid glands are not merely undeveloped thyroid tissue, but that they have a separate function, and that their removal leads to the production of tetany.

The chapter on the surgery of the nose and accessory sinuses, by Mr. Harold Barwell, contains a plate which shows well the transillumination of the antrum and the frontal sinuses. Mr. J. Stoddart Barr's article on the surgery of the ear, pharynx, nasopharynx, and larynx is good, and it is elucidated by some useful illustrations of the anatomy of the ear, though they are on rather a small scale. Sir StClair Thomson has described the direct examination of the lower air passages and of the oesophagus. Space does not allow us to notice in detail the different divisions of the work; but we may mention that the chapter on the lungs and pleura is by Mr. H. Morriston Davies; that on injuries and diseases of nerves by Mr. James Sherren; that on the scalp, skull, and brain by Mr. Wilfred Trotter; that on the spine and spinal cord by Mr. Wilfred Trotter and Mr. Gwynne Williams; that on the surgery of the jaw by Mr. D. C. L. Fitzwilliams; that on the skin and subcutaneous tissue by Mr. T. P. Legg; that on the surgery of muscles, fasciæ, and tendons by Mr. Rock Carling; that on bursæ by Mr. E. D. Telford; that on bones and joints by the Editor; that on fractures and separation of epiphyses by Mr. Albert J. Walton; and that on orthopædic surgery by Mr. R. P. Rowlands. The names of the authors are a sufficient indication of the value of the chapters they have written. All can speak with authority.

L'Infection Puerpérale: Diagnostic; Traitement.

By Professor CONSTANTIN DANIEL, Bucarest. Paris: A. Maloine. 1914. Pp. 123.

IN this monograph the author demonstrates that the condition known as puerperal septicæmia is in reality surgical septicæmia affecting the puerperal patient, and not in any sense a specific disease, and points out that this conception of the disease was originally put forward by Simpson in 1851. Although it is not possible to deny the occurrence of auto-infection, yet it is certain that in the great majority of the cases the infection comes from without, and its entrance into the body is therefore preventable and should be prevented. The two main forms of localised infection, generally with something retained in the uterus, and generalised infection, are distinguished, and the great importance of a bacteriological examination is in every case insisted upon. Clinically three types may be differentiated: that in which the infection remains local, that in which it becomes secondarily generalised, and a third in which it is an acute general infection from the commencement, a true septicæmia. In considering the treatment of these cases the author recommends first an intra-uterine douche and then curetting. With this advice most English obstetricians would disagree; they would prefer digital exploration first, with the complete evacuation of the uterus if necessary, followed by an intra-uterine douche of some harmless fluid, such as sterile water, and no curetting. The author discusses serotherapy and the various methods of producing leucocytosis, but nothing is said of the treatment by vaccines.

The book forms a clear and interesting résumé of the main facts that are known of puerperal infection, together with some informing statistics.

Local Anæsthesia: its Scientific Basis and Practical Use.

By Professor Dr. HEINRICH BRAUN, of Zwickau. Translated and edited by PERCY SHIELDS, M.D., Cincinnati, Ohio. From the third German revised edition. London: Henry Kimpton. 1914. Pp. 399, with 215 illustrations in black and colour. Price 21s. net.

Professor Braun's work upon local anæsthetics is well known in this country, and the latest edition of his book will be a welcome addition to the library for those who make use of the methods with which his name is associated. The book is a very complete exposition of the principles and the practice of local analgesia, is well printed and furnished with remarkably clear diagrams and illustrations. Many of these are photographs taken at operations to illustrate various stages and processes in the performance of infiltration and conduction anæsthesia.

The book begins with a history of the attempts to obtain satisfactory local anæsthesia from very early times up to the introduction of cocaine in 1884. It is from that year that local analgesia begins in any form comparable with that with which we are now familiar. Next comes a comprehensive survey of the work that has been done bearing upon the susceptibility to pain of the various organs and tissues of the body, and a chapter upon the pain-relieving action of nerve compression and anæmia. Here it is made plain that the surgeons of old were right in attributing ligation anæsthesia to pressure on the nerves; the accompanying anæmia is of only secondary importance. In a chapter discussing the

effect of osmotic tension of watery solutions the defects of tumefaction anæsthesia, or "anæsthesia dolorosa," are explained, and this method is denounced as practically useless. The different local anæsthetic agents are discussed at length with the various methods of using them, and attention is paid to the symptoms and treatment of cocaine poisoning. Braun endorses the usual opinion that there is no real antidote for cocaine. Stovaine, according to his investigations, causes injury to tissues even in 1 per cent. solution. His final choice of agents is in favour of novocaine and alpine, tropacocaine and stovaine being reserved for spinal analgesia. The two former meet all the requirements which he demands of a local anæsthetic, including compatibility with the use of suprarenin. The influence of the vitality of the tissues upon the local and toxic action of anæsthetic agents is considered in a further chapter, and then the technique of operations upon various parts is gone into in detail and supplemented with excellent illustrations.

The book may be fairly regarded as a complete and masterly account of local analgesia.

Urgent Surgery.

By FELIX LEJARS, Professor Agrégé à la Faculté de Médecine de Paris, &c. Translated from the seventh French edition by W. S. DICKIE, F.R.C.S., Surgeon, North Riding Infirmary, Middlesbrough. Third English impression. Vol. I., Introductory, Head, Neck, Chest, Spine, Abdomen. Bristol: John Wright and Sons. 1914. Pp. 614, with 20 plates and 1086 illustrations. Price 25s. net.

THE seventh French edition of this well-known work was reviewed in these columns so recently as Sept. 19th, 1914, but this, the second English edition, deserves a fresh set of readers in this country. For their benefit it may be stated anew that the author takes a wide view of the term "emergency"; that he speaks precisely and definitely but not didactically, drawing upon a vast experience, and illustrating his text with brief but lucid case reports.

Injuries of all types naturally figure largely in the chapter headings, which indicate the comprehensive character of the text. Subcutaneous injuries of the chest, for example, take six pages, whilst wounds of the thorax need 40. The section on wounds of the pericardium and heart is well illustrated, and embodies the cream of extensive recent literature in addition to the author's personal experience; even gastrostomy and jejunostomy are included, which as we all know ought not to be, but not infrequently are, surgical emergencies. Additions in this edition deal with acute dilatation of the stomach, acute pancreatitis, obstruction of the mesenteric vessels, sigmoiditis, and perisigmoiditis.

Whilst this book is certainly one to be read by the junior surgeon, to prepare him for prompt action in moments of emergency, and may in ideal conditions be available for reference at such times, it has in addition altogether another value. Most surgeons have very poor records of their most interesting operations, for these are of necessity performed in moments of stress. A volume such as this, read at leisure, will enable the busy surgeon to recall his experiences and to collate them with the author's. Much, indeed, of the text is only to be fully appreciated by those well versed in practice, but to them it offers a means of consolidating knowledge with great gain in precision and utility. In this light the chapters on abdominal surgery may be read with all the absorption of the

"Arabian Nights' Entertainments"; and this leads us to one querulous complaint: the paper is so highly glazed for the sake of the illustrations that in artificial light the letterpress cannot be seen at all at some angles. This, to be sure, is but a trivial fault in a book of solid worth. It is due to the translator to say that his work has been extremely well done; the text reads as if composed in sound English.

Précis de Chirurgie de Guerre.

Par EDMOND DELORME, Médecin Inspecteur-Général de l'Armée. Paris: Masson et Cie. 1914. Pp. 230. Price 4.50 francs.

IMMEDIATELY after the outbreak of hostilities the author delivered an address at the Institute of France on the leading principles of surgical treatment in the field and on removal to hospital. This was received with great applause and has been circulated widely by the War Ministry amongst the medical officers of the army and of the hospitals where military patients are received throughout France. Dr. Delorme, in spite of incessant and laborious military duties during the last three months, has been able to put together in a very handy and compact form all that is necessary for a military surgeon to know in regard to wound treatment. Extreme brevity and clearness of expression, with precise directions as to what must be done and what should not be attempted in the treatment of wounds, are the distinguishing marks of the book. This is just what is wanted by the surgeon on active service. There are a few illustrations. The number of these might have been usefully increased, but the circumstances of the production of the book are probably the reason for the absence of some. A short description is given of the weapons and of the projectiles used in modern warfare, after which wounds are dealt with, first according to the tissues and then according to the regions affected. The author rightly insists that the field dressing must be properly applied by the surgeon or his assistant, not by a soldier or a comrade, "mieux vaut ne pas panser une plaie que de la mal panser," otherwise there is no security against infection. Tincture of iodine (1 in 20) is the disinfectant used. Dr. Delorme especially emphasises the almost uniformly conservative tendency of modern surgery.

JOURNALS AND MAGAZINES.

The American Journal of Tropical Diseases and Preventive Medicine. Vol. II., No. 6 (December, 1914).—Dr. Isadore Dyer writes on venereal diseases considered as a public responsibility, and points out that although provision is made for such cases in some general hospitals, in most of them these affections are endured and not invited. He thinks that it is not extreme to say that nothing at the present time is more menacing to society than the prevalence of syphilis and gonorrhœa, and no demand is so urgent as that of adequate protection by proper hospital provision. The present method in the United States, as elsewhere, makes the victim of venereal disease secretive and neglectful by surrounding treatment at a public institution with such an atmosphere of incrimination that the patient applies for medical relief only as a last resort. Dr. Dyer therefore pleads for separation of the medical side of the question from the moral and social, and he urges that venereal diseases should have the place in the hospital plan which their importance demands. — An article on Human Filariasis is contributed jointly by Dr. Allen J. Smith and Dr. Damaso Rivas, containing a relation of certain observations carried out by them during the past

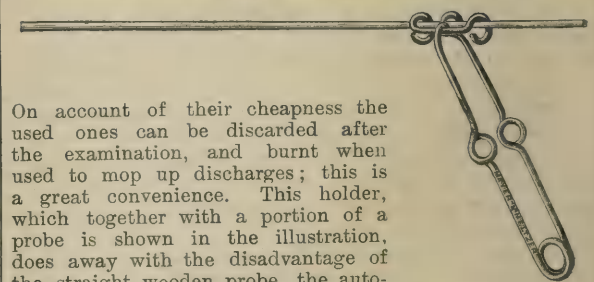
four years on patients suffering from filariasis in the Laboratory of Comparative Pathology and Tropical Medicine of the University of Pennsylvania. A series of experiments were also carried out with bed bugs to test the suggestion that this insect might act as the intermediate host of the filaria bancrofti. Although microfilariae were found in the body of the bed bugs after they had been fed on two infected patients (both of them students from Porto Rico), and although the microfilariae lived in the body of the bed bugs up to the eighth day, no evidence was found of development taking place. It is, moreover, questionable if larval development is possible in the bug. But, nevertheless, the chance of finding filarial embryos in these insects in houses where filarial patients have passed the night is at least of interest, and might perhaps occasionally be of practical importance.—Dr. H. C. Clark, of the Ancon, Canal Zone, Medical Service, gives an analysis, with copious details, of 37 fatal cases in which pellagra had been diagnosed either alone or in association with other diseases. Histological, bacteriological, and inoculation observations offered no data that would help to reveal an etiological factor, or to prove that the disease was a separate entity. There was a striking association of pellagra with such diseases as syphilis, chronic alcoholism, arterio-sclerosis, starvation, chronic pelvic inflammation, and various types of chronic intestinal inflammation, and it would appear possible that this syndrome might frequently be a sequel to the above-named conditions. —News and comments on passing events, along with reviews of current literature, complete the number.

Eugenics Review, January, 1915.—In men and in money the present war will exact a toll the effects of which will be felt long after peace has been declared. That racial qualities must be affected is equally certain, and any contribution which may help towards a solution of the many problems which will confront us in regard to the well-being of the race should receive attention. In an article entitled *Eugenics and the War*, Mr. Theodore G. Chambers discusses from the point of view of the inevitability of war its racial effects. He quotes the opinion of many writers on the subject, and the conclusions are necessarily somewhat indefinite. *The Measurement of Intelligence*, by Dr. T. Simon, translated from the French by Dr. W. C. Sullivan, is another paper dealing with a subject which is attracting much attention.

New Inventions.

AN IMPROVED PROBE-HOLDER.

WOODEN probes are very useful in nasal and aural work, and especially so when used as wool carriers.



On account of their cheapness the used ones can be discarded after the examination, and burnt when used to mop up discharges; this is a great convenience. This holder, which together with a portion of a probe is shown in the illustration, does away with the disadvantage of the straight wooden probe, the automatic clip can be released, and a new one inserted without soiling the fingers. The instrument has been carefully made for me by Messrs. Mayer and Meltzer, Great Portland-street, London, W.

Shrewsbury.

C. G. RUSS WOOD, F.R.C.S.

THE GALTON LECTURE.—The Galton dinner and lecture, which were instituted last year by the Eugenics Education Society in honour of the memory of Sir Francis Galton, F.R.S., will be held this year, as before, on the anniversary of his birth, Tuesday, Feb. 16th, at the Hotel Cecil, at 7 P.M. Professor J. A. Thomson will deliver the lecture, which will deal with Eugenics and the War.

THE LANCET.

LONDON: SATURDAY, JANUARY 23, 1915.

The War and Nervous Breakdown.

AN increase in the number of nervous troubles is naturally to be anticipated during the time of war. All forms of nerve instability will certainly receive fresh impetus. Recrudescence of dormant weakness is sure to occur under the additional strain involved in long-continued personal anxiety combined with the weakening influence of fatigue and, perhaps, economy of food. The loss of central control during an engagement has often been depicted in art galleries, and the conception of the artist is abundantly confirmed by the extracts from letters from the front which have been appearing in many of our contemporaries. The overmastering interest of the time of engagement does not persist in normal individuals. With the relief of the immediate strain of conflict the organism speedily regains its normal tone, and though there may be a fleeting return of excitement during the narration of experiences, no harm results so long as the individual is not haunted by the past both day and night. This is, however, only true for the majority of previously healthy young adults who have been in the firing line. Neurologists state that they are being consulted by an increased number on account of many nerve symptoms of an ill-defined character. Some of these cases present symptoms analogous to those of milder forms of epilepsy, and on investigation it may be found that during infancy or adolescence similar symptoms had been present. Far more frequently an accurate diagnosis is not possible, or, at least, a diagnosis which will harmonise with any definite lesion. The condition resembles that which has long been familiar in the law courts in claims after railway accidents, to which it has been convenient to apply the term "shock."

Although many features of the present war will impress future generations with a sense of horror, there are also, happily, many comforting reflections to be derived from observation of our national characteristic trend of thought. It is distinctly cheering to note how eagerly each possible new development is appreciated, as measures are devised for dealing with each contingency on reasonable lines. From the outset of the war it was evident that one problem would be the judicious treatment of nervous symptoms. The early arrivals, who had been through all the weariness of forced marches with insufficient sleep, gave us a warning that could not be disregarded. Lord KNUTSFORD, drawing conclusions from the condition

of those reaching the London Hospital, appealed for funds to establish an institution for the treatment of cases of shock. His appeal met with ready response, which has permitted the opening of a special hospital for officers, equipped for the reception of 35 patients. We learn that it is at the instance of the War Office that this undertaking has been restricted to officers, but it would seem possible that ere long something of a similar nature may be required for the treatment of the rank and file. At the moment of writing this question is under discussion by numerous voluntary helpers, and it is uncertain whether their conclusions or recommendations will be of a nature to secure official approval. No doubt steps are being taken to determine whether the generalisations drawn from a limited number of cases in the early days of the war are supported by further observations. It is essential that this question should be decided before it is worth while formulating elaborate schemes likely to entail considerable expenditure. Amongst the soldiers who have been through the harassing time in the trenches there are certainly some whose condition appears to call for the utmost consideration and patience. They are sleepless, or sleep in short snatches disturbed by frequent nightmares. They are dull and depressed, and they are unable to take interest in their surroundings. This dreary picture of apathy is said to be strongly suggestive of the usual premonitory symptoms of chronic mental degeneration, familiar to those who work among the border-line cases, which so often end in melancholia or in delusional forms of insanity. While, however, this is true of some officers, so far, we believe, it has been comparatively rare among the men of the rank and file. The latter, although submitted to the same bewildering tumult of noise and to similar short hours of sleep, do not appear to suffer to the same extent as the officers, who, in addition, have to experience the continual strain of heavy responsibility. All accounts favour the conclusion that among the men it is rare to find that the apathetic condition persists, or that it leads to more permanent mental changes.

It would perhaps be rash to assume that the men possess a greater reserve of recuperative power than their officers, or to infer that their restoration is due to lack of imagination or want of memory, but all observers agree that just as they take their discomforts in the trenches in light-hearted fashion, so they go through hair-breadth escapes with cheery optimism. Even some of those who seemed most depressed on their return to this country speedily recovered tone, after sleeping almost continuously for 48 hours. The point which has to be determined, however, is whether all cases of nervous breakdown will really pursue such a satisfactory course, and what is to be done with those who still show signs of instability long after they have

been removed from the active line. Some such cases are certainly hopeless, but there are others, and happily these are in preponderating numbers, where there are good grounds for believing that they may again become useful citizens. In these more prolonged cases it is in the highest degree improbable that they can ever be employed again on active service. They are so far shaken that they could not be trusted in emergencies. They might be of use in the army in times of peace, but having lost nerve they could never be sent to the front again. While the outlook in these cases is thus limited, it is to be hoped that the authorities will see their way to some form of treatment which will not hamper the future by the infliction of a stigma. Admitting that they bear all the appearances of border-line cases it would be regrettable if they were sent to public institutions as though they had already crossed the border. The difficulty of finding employment for those who have been discharged from the service as unfit is already great. The difficulty should not be increased by adding the stigma of retention in a lunatic asylum unless there have been unmistakable grounds for this course. We mention these things hopefully, for during the administration of Sir ALFRED KEOGH there have been abundant indications that the medical department of the War Office is acting with due consideration for individuals, and for the welfare of the community, as well as for the prosecution of the war to a successful issue.

Antityphoid Inoculation.

THE agitation which has been engineered in certain quarters against antityphoid inoculation has drawn public attention to a prophylactic measure the utility of which has been proved for all minds capable of appreciating what proof is; but misrepresentations made with sufficient reiteration and vehemence produce upon ignorant people impressions which are hard to remove. Evidence is accumulating in all parts of the world demonstrating the good results which have followed the adoption of inoculation against typhoid fever. The large number of deaths which occurred in the South African War well illustrated the ravages of disease during campaigns where preventive measures were imperfect, but we got little therapeutic instruction from the tragedies which ensued. There were 57,684 cases of typhoid fever, of which 19,454 (33 per cent.) were invalided and 8022 (13·9 per cent.) died. Although inoculation had been introduced at that time the conditions under which the treatment was employed made deduction from the results unsafe. The technique has since been considerably improved, and the experience of other nations has made clear the beneficial effects of preventive inoculation. Sir W. B. LEISHMAN in a letter in THE LANCET of August 22nd, 1914, instanced the fact that about 93 per cent. of the British garrison in India have been protected by

inoculation, and the disease which used to cost the nation from 300 to 600 deaths annually was last year responsible for less than 20 deaths. Again, inoculation was made compulsory in the American army in 1911, it having practically abolished the disease in American stations; in 1913 there were only three cases of typhoid fever in the entire army, and no deaths. In Japan also encouraging figures have been obtained. In short, all experience goes to prove that inoculation against typhoid fever is a most valuable adjunct to the health of an army. It must not be asserted that it is an infallible protective—that is to say, that a man who has been inoculated is proof against infection. That would be adopting a view which cannot be supported by clinical evidence, and might easily give a false impression to the general public, and so play into the hands of the enemies of research. But inoculation does confer a very considerable degree of immunity against typhoid fever, and the disease in the inoculated person is of a far milder type than in the unprotected. These two things would constitute a sufficient cause to urge the free adoption of the measure. Inoculation, however, does more than this: it greatly decreases the incidence of the malady.

Medicine is regularly attacked by those quite ignorant of medicine. In regard to a knowledge of (say) physics, law, or military tactics, the public at large, as a rule, pay deference to those who have made a life-long study of a particular profession, but towards medicine the public to some extent adopts a different attitude, and upon occasion there is a reasonable basis in this attitude, for a man has naturally a feeling towards his body that he has not towards his possessions or his civic privileges. Well aware of this feeling, agitators have shown their hatred of scientific medicine in a manner difficult to combat, but very likely to obtain recruits from the ignorant, the timid, and the sentimental. Physicians and surgeons who have devoted themselves to a study of disease, its cause and prevention, are quite used to being contradicted by these sort of people, and as a rule only resent the treatment when the general health of the community is in question. Consequently faddists are listened to and believed who have had no opportunities of studying the intricate problems of morbid processes, and their opinions are quoted seriously against those of members of the medical profession who have devoted long years to special work. At the present time a course is being pursued in connexion with inoculation against typhoid fever which well illustrates the danger of allowing unlimited license to antiscientific agitators. A quantity of "literature" is being widely disseminated, containing garbled statements and misrepresentations which can only have an unhappy influence upon a large number of those who read them. The pamphlets or circulars are couched in terms of patriotism; and came to us in one case accompanied by a little publication, humorously quoting Dr. JOHNSON as saying that "patriotism is the last

refuge of a scoundrel." The argument which the agitators employ is that the idea of inoculation is a bar to recruiting. Of course, the idea only becomes a bar to recruiting among those who have been filled full with falsehood. The man who wishes to serve his country, for the sake of himself and his comrades should be willing to undergo discomfort rather than risk the introduction among the troops of the ravages of a disease which in the past has caused so many deaths. For if a man contracts typhoid fever he is a danger not only to himself but to those who are associated with him. Some inconvenience for a day or two is nothing as compared with an attack of typhoid fever; to undergo an infinitesimal—nay, a negligible—risk in order to help in the maintenance of a healthy army is what is required of the recruit, but this is not the way in which the situation is described by the authors of these circulars, who are thrusting on the public their ill-informed pathology by advertisement also. No words are too strong in condemnation of those who under the guise of patriotism are seeking to force their own fads, founded upon ignorance, upon our prospective troops to the detriment of the future of the nation.

It is evident that the dissemination of these circulars in a broadcast way may prove a distinct danger to the State, and the danger is exaggerated when advertisements in support of the attack upon recruiting are accepted by a national institution like *Punch*. Authority has been given to the Press Bureau to prevent anything being published that will act in a detrimental manner to the course of the war. The action of ignorant fanatics in attempting to influence our recruiting, and to persuade those in our army to refuse to follow a preventive treatment which the highest medical authorities recommend, is surely detrimental to the cause of the Allies, and we strongly urge the authorities to take all the necessary steps to prevent the publication of pamphlets and advertisements spreading misleading statements on such an important matter as inoculation against typhoid fever. The misuse of the term "paratyphoid" in the advertisement which appeared on Jan. 13th last in *Punch* (and whose insertion our contemporary has now stated to be due to accident) in itself shows the want of knowledge on the part of the persons who are responsible for public statements that the recruits are being treated with "tyranny" and "ingratitude," and that inoculation has been proved to be "an utterly useless and dangerous practice."

The recent letters to the *Times* of Sir WILLIAM OSLER and Sir LAUDER BRUNTON form a praiseworthy summary of the situation, and the former's appeal to soldiers in two final questions should have as wide a circulation as possible. The questions are:—

1. Will you believe the statements of misguided cranks who are playing into the enemy's hands by purveying their misleading literature, or will you hearken to men who have

devoted their lives to the service of humanity, and who have no wish in the matter other than your good?

2. Against a transient indisposition will you put in the balance the chance of a protracted and costly illness, possibly an untimely death?

As soon as possible the publication of the statistics of the results so far observed as regards the value of inoculation during the present war should be published. No official pronouncement has as yet been made, but it is significant that the French military authorities are stated to be so satisfied with the value of inoculation that army surgeons are sent to the front to vaccinate a whole army corps in the firing line. It is further stated that arrangements are being made to inoculate every soldier whether at the front or at the depôts in the interior of the country. Whether compulsory inoculation should be introduced into our forces is a question which has no doubt been seriously considered by those responsible for the health of our armies, and doubtless if they decide to introduce such a measure they will be entirely uninfluenced by idle chattering.

Annotations.

"Ne quid nimis."

THE AIR RAID.

ON Tuesday evening last an air raid took place over the east coast of England, when bombs were dropped into Great Yarmouth, Sherringham, and King's Lynn, confirming the probability of such attacks upon unfortified places. So far it is only coast towns that have suffered, whether from raids by sea or air, but while, of course, only such towns can be subjected to shell-fire from sea, inland communities, if fortune fights on the side of the attack, can be harassed by missiles from the air. It would be childish to point this out were it not that some among us appear to forget it, and their behaviour is as troublesome as that of those who can think of nothing else. The raid on the Norfolk coast is a complete answer to those who have grumbled without cease at the atmosphere of depression created by placing London for so long a period in gloom—a gloom which has been accentuated to the point of darkness recently, as information concerning the German intentions grew more complete. Those communities which by their geography or their importance invite the attention of the enemy must be prepared for attacks by air, and if we can all imitate the brave calm of Norfolk under trial the attacks will fail in their principal object, whatever miserable toll of life they may exact. We do not minimise the anxieties, and in a few sad cases the anguish, caused by air raids on our coast when we say that no serious damage can be done by them to the general military situation. But in densely populated settlements, of which London is the greatest example in the world, the loss of life following such attacks might be terrible. We would urge the citizens of great cities at the first warning of the approach of danger to obey such authoritative advice as they have as yet received—advice which calls attention to the danger from fragments of the shells and bullets fired by our guns used against hostile aircraft.

The streets should be avoided by the populace when it is known that an air raid is imminent, as being the really dangerous place. There is nearly as much chance of a bomb dropping in a street as on a building, while the streets will necessarily be exposed to the missiles of the defending guns. In the metropolis and in some other large towns medical precautions have been taken in case of air raids, and the necessity of the general population taking cover is always assumed in these arrangements. In London plans have been made with the full approval of the police for the immediate dispatch of surgeons to the spot in the event of any terrible emergency, and, moreover, a scheme has been carefully thought out whereby first aid will be rendered in harmony with the police to any sufferers from an air raid, all local men assisting in rendering the necessary help before the wounded are removed to hospitals or other institutions. We hope that other great cities have organised some plan for making use of their medical inhabitants. This should be done at once, for there will be no certainty, and generally no possibility, of summoning medical aid to a given spot after the tragedy has occurred, when there will be few lights, consequent difficulties of transport, and perhaps disorganisation of telephone and telegraph.

THE SCHEDULE OF POISONS.

THE law relating to the sale of poisons is continually a source of disquiet to the public conscience. Upon the occurrence of a fatality due to a poison, whether the result of accident or design, in all probability the scope of inquiry will include considerations of purchase. Coroners' juries seem never to weary of calling the attention of the proper authorities to the need of imposing additional restrictions on the sale of poisons. It is not always clearly understood who these authorities may be or what difficulties may stand in the way. It is felt that the safeguards provided by law are defective, and it is more judicious to kick the law, an impersonal, nonsentient organism, than to pass a resolution of censure upon some unfortunate wight who has been outwitted. As the law stands poisons are divided into two groups, Part 1 and Part 2 of the schedule, and the restrictions imposed in the case of any particular drug or poisons depend upon the place assigned to it in the schedule. The obstacles in the way of sale to the public are greatest with regard to all poisons included in Part 1 of the schedule. Frequently complaint is made that these regulations are unduly troublesome to the vendor, and protests are raised when any additions are made to the list, even though the need of such additions has been emphasised by repeated misadventures, as was notable in connexion with veronal and hypnotics of allied chemical composition. It is generally assumed, when there has been delay in the inclusion of new poisons in the schedule, that the fault lies in the intricacy of the steps by which the change is to be effected. This is not strictly true, though the recommendations have to receive the approval of certain public officers after they have been transmitted from the Pharmaceutical Society. To judge from recent pronouncements it would seem that the reasons for delay are more intimately connected with an amiable desire to meet the demand for the articles. We have noted that the alteration in the strength of the official tincture of opium has had the effect of bringing it automatically within the scope of Part 1 of the schedule,

which includes opium and all preparations or admixtures containing 1 or more per cent. of morphine. While no objection has been taken to the alteration in strength, there has been an outcry against the retention of the synonym "laudanum," since it appears that under this name the drug has hitherto been freely sold in small or large quantities. The matter has been deemed of sufficient importance for the Pharmaceutical Society to seek the advice of its Law Committee and it has received and adopted the following report:—

That the policy to be advocated by the Council in regard to the sale of laudanum should be that when "laudanum" is asked for the 1914 preparation should be supplied and the poison book signed; but where the 1898 preparation is demanded care should be taken to label accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

It would be interesting to know how often we are likely to meet with a member of the public who has any notion of the difference. Probably the majority will ask for what they have been in the habit of using, and if tinctures of both strengths are kept, the one will be reserved for the emissary from the local inspector, the other, with a few words of explanation, will be supplied to the public as before. There is always danger in keeping preparations of different strengths with similar names, and it is to be hoped that this suggested system of meeting the demand for the sale of a remedy which may become a poison if improperly employed, will speedily be rescinded. Meanwhile it is curious to note that in Ireland opium and all preparations of opium or of poppies appear in Part 2 of the schedule, which means that though they require a label stating the name of the article, the word "poison," and the name and address of the seller, it is not necessary in Ireland to make any entry in the poison book of the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, and the purpose for which it is stated by the purchaser to be required. Comparison of the schedules of Great Britain with those of Ireland reveals several other inconsistencies and affords strong reasons for suggesting that the two should be brought into harmony whenever it is possible to devote attention to the subject.

REMOVAL OF A BULLET FROM THE ATLAS.

In the *Boston Medical and Surgical Journal* of Nov. 26th, 1914, Dr. F. H. Lahey has reported a case in which he performed the unusual operation of removing a bullet from the atlas. The patient was a boy, aged 8 years, who, while sleeping, was shot by a demented parent. The bullet entered the left side of the upper jaw just above the second incisor tooth, penetrated the hard palate near its junction with the soft, and entered the posterior pharyngeal wall. The X rays showed the bullet lying inside the posterior arch of the atlas on the left side, just behind the groove for the vertebral artery. On the next day the boy was taken to hospital. An immediate operation was not performed on account of sloughing of the wound of the palate and because the bullet was causing no symptoms. After three days, when much of the slough had separated, a curved incision was made from below the external occipital protuberance to the mastoid process. The incision was deepened through the cervical muscles, as in performing suboccipital decompression, until the posterior arch of

the atlas was reached. The incision was then carried through the left lateral occipito-atlantal ligament until a small blackened area was found surrounding the bullet. Removal was difficult until a good grasp of the bullet was obtained with toothed clamps, because the bullet was wedged beneath the arch of the atlas and there were a few sharp projections on it which were produced in its transit through bone. A rubber drain was inserted and the muscles were sutured with chromic gut and the skin with silkworm gut. Recovery from the operation was uneventful. The child was kept flat on his back and not allowed to move his neck for two weeks. When he was discharged on the twentieth day the wound was solidly healed, but there was considerable stiffness of the neck, particularly for backward movements of the head and rotation from left to right. A month later movement was freer, but was still limited in the directions mentioned. An interesting point is that the bullet entered the spinal canal in front between the base of the skull and the atlas, and was extracted from the canal in the rear, and yet the cord apparently was uninjured.

A NEW METHOD OF STERILISATION.

Dr. Guido Cremonese, in a recent issue of the *Gazzetta degli Ospedali*, draws attention to the value of iodobenzene as a disinfectant. It is prepared by pouring some tincture of iodine into a certain quantity of benzene; the excess of tincture of iodine sinks to the bottom and a saturated solution of iodobenzene is formed. Gratifying results are claimed for its use, first for sterilising the hands, it being sufficient to rub in a small quantity; secondly, as a ready method of preparing dressings by soaking them in the solution which is then allowed to evaporate; and thirdly, for sterilising wounds by the application of tampons medicated in this manner. The author states that with the antiseptics in common use some time is required to render a septic locality sterile. Iodobenzene, on the contrary, has a rapid and immediate action by means of irradiation of nascent iodine vapour by the rapid evaporation of iodine and benzene. The antiseptic action is therefore developed at once, while after a few minutes a simple sterile dressing remains in contact with the wound.

THE CHEMISTRY OF RICE POLISHINGS.

THE curative substance of rice polishings is still resisting analytical attempts to isolate a definitive principle. Some recent work by J. C. Drummond and Casimir Funk upon this subject is recorded in an interesting paper published in the December number of the *Bio-chemical Journal*. These workers carried out an exhaustive fractionation of the phosphotungstic acid precipitate from an alcoholic extract of rice polishings. They confirm the presence of considerable amounts of choline and nicotinic acid in the polishings, and betaine, adenine, guanine, and possibly guanidine were detected. Small amounts of other substances were isolated, but in quantities insufficient for identification. The work of the Japanese authors, Suzuki, Shimamura, and Otake, who claimed to have isolated the curative substance in the form of its picrate, was repeated, but the results did not lead to any confirmation of the work of these investigators. While Drummond and Funk failed

themselves to isolate the curative substance which occurs in rice polishings, they are inclined to think that it is decomposed during the fractionation process, when all trace of it is lost. From this it would appear that the so-called vitamine is a readily decomposed base, and it would be interesting to discover what happens to its nitrogen in the processes of nutrition. Usually inert, nitrogen may in a nascent state prove to be an activator.

DEATH AND THE ADRENAL GLANDS.

It is probably a unique observation in morbid pathology that there exists one particular organ, the adrenal gland, careful examination of which can indicate with tolerable certainty the manner or mode of death. With the particular disease responsible for the *exitus* the condition of the gland may have less immediate concern. To explain the relation of this gland the following facts may be noted. Of the two parts of the gland the cortical, constituting 80 to 90 per cent. bulk of the organ, stores a lipoid material; the medullary portion secretes adrenalin. It is with this latter function that we are immediately concerned. An intimate physiological relationship exists between the nervous sympathetic system and the adrenalin gland content which controls the vascular tension. An effective supply of adrenalin ensures an efficient circulatory and general tone; diminution leads to fall of blood pressure and asthenia. The estimation of the gland adrenalin content after death shows important changes, and it is these which indicate something of the conditions preceding death. Dr. T. R. Elliott¹ has examined the glands from the point of view of adrenalin content in 80 cases (the lipoid was estimated in 170 cases). The first fact brought out was that no relationship could be established between the particular disease and the adrenalin content, nor was there any definite relationship between cortex and medulla. But an important difference in content was noted when the mode of death was inquired into. Sudden death, due to whatever cause, showed a practically normal adrenalin content; where, however, general distress preceded death, a marked loss of secretion in the gland was noted. For instance, the gland content in a case of sudden death was 4.5 mg. (a normal figure); in a heart case with slow failure and apathetic death 2.3 mg.; in another heart case with acute failure and mental distress, 0.2 to 0.7. Prolonged anaesthesia may induce similar changes—e.g., long anaesthesia, 2 to 3.0 mg. That adrenalin exhaustion follows strains imposed upon the nervous system has been abundantly shown in experiments, and that the gland is "emptied" as it were of adrenalin by splanchnic nervous channels has been shown in cats, where, on splanchnic supply being cut off, the gland it supplies is not affected under exhausting general conditions which "empty" the opposite normally innervated gland. The adrenal glands are played upon by emotional and vasomotor reflexes as frequently as are the muscles of the blood-vessels themselves. In such a crisis as impending death from diphtheria intoxication, for instance, there is an urgent demand by the individual to combat the fall of blood pressure and other changes elsewhere. To maintain the vascular tone the adrenalin is called upon, and we find as a result

¹ Quarterly Journal of Medicine, Oxford, 1914, vol. viii., p. 47.

lessened quantity under such conditions. The different effect that mode of death exerts upon the adrenalin where the essential cause, cerebral hæmorrhage, was the same, was strikingly seen in two cases. In one case death followed 11 hours after a severe and extensive positive hæmorrhage; adrenalin content much diminished, 1.2 mg. Evidence here shows drain on glands due to vasomotor medullary action being induced by the sudden rise of blood pressure demanding slower pulse-rate. In a second case, however, where pachymeningitis hæmorrhagica occurred with two days' coma preceding death, the adrenalin content was 3.0 mg. Here the coma deleted any distressing conditions liable to induce gland exhaustion. Many facts in this valuable paper throw light also upon cortical function; theories are critically examined, and an account of the technique for reliable gland examination mentioned. We have here noted only one, but an interesting part of this subject.

POST-LITIGATION RESULTS IN THE TRAUMATIC NEUROSES.

AT last year's annual meeting of the American Neurological Association¹ held at Albany, New York, a profitable discussion on post-litigation results in cases of traumatic hysteria and traumatic neurasthenia was initiated by Dr. F. X. Dercum (Philadelphia) who based his paper on some 605 traumatic litigation cases personally examined and recorded for prosecution or defence. In 126 of these the injuries were physical. In the others, constituting much the larger proportion, the symptoms were those of so-called traumatic neurosis, and in many instances Dr. Dercum considered them unreal and unessential. He took the view that hysteria, for instance, was an innate affection pre-existing in the individual suffering from trauma, and his experience was that in such cases the symptoms always persisted until the final settlement of the action; then they subsided and disappeared. He gave brief reports of some 20 cases carried into the court room on stretchers or chairs, or "too seriously injured to be brought into court"; in all of these the symptoms rapidly vanished after settlement. Dr. Dercum said the whole subject was of paramount importance to the community, as on it the eventual cost falls. He gave it as his opinion that the law should ensure compensation for physical injuries only. In the State of Pennsylvania damages for fright were no longer allowed, and he thought that compensation for traumatic hysteria should also, and logically, be excluded. Dr. Hugh Patrick (Chicago) said he considered that the employers' liability laws were adding to the invalid list enormously, continuously, and increasingly. He referred to the state of affairs in Germany and Austria, where, as is well known to neurologists, the burden of the disabled and quasi-disabled weighs ever more heavily on the nation. In fact, a new neurosis, distinguished as a "fight-for-compensation neurosis," has been described by German writers. Dr. Adolf Meyer (Baltimore) pointed out the essential unfairness of restricting compensation to cases of physical injury only. Serious shock was surely physical in quality. If too hard and fast a line were drawn, there would be a reaction on the part of the legislature, and what he called "emotional jury verdicts" would result. He entered a plea for the elimination of

protracted litigation, and urged the necessity of all expert professional reports being committed to writing, so that certain types of so-called experts could be pilloried and eliminated. Subsequent speakers also considered that Dr. Dercum's position was too extreme, and quoted cases where recovery had not followed settlement. Dr. Pearce Bailey (New York) said that it was urgently desirable to interview the injured immediately after the accident; if no period elapses for the "working up of revengeful feeling" the traumatic neurosis will rarely develop. Dr. Diller's attitude was on the whole one which we think will commend itself to the physician. He alluded to the handicap felt by the physician in treating such patients pending litigation, and gave it as his experience that a gradual improvement takes place after the award of damages, an improvement much more marked than before settlement. He held that if an individual in good health is injured in an accident and thereafter suffers from neurasthenic or hysterical symptoms these should be fairly attributed to the accident; they are real and not imaginary, though they might be exaggerated. Exaggeration is a common tendency in all kinds of sickness. While it is perfectly true that many of the traumatic neuroses would never have occurred had the individual not possessed a neurotic temperament, on the other hand such an individual might have gone on through life without showing marked nervous symptoms had it not been for the accident. Apparently little reference was made in the discussion to the great practical importance of the manner in which the claim is settled. Large statistics from railway compensation cases in Germany² have shown conclusively that the results are much better when compensation is paid in a round sum than when it is awarded to be paid weekly for an indefinite period. Wherever practicable the medical profession should take up a strong position on this point. It is apparent, we think, that the matter is too complex to be settled offhand by any radical declaration. Neither the employer nor the employee is responsible for the neurotic temperament of the latter, and were the sufferer from traumatic neurosis to be considered devoid of all claim for compensation it would look, as one of the American speakers said, as though he were being penalised for his own nervous instability. The subject is of everyday importance, and it might be well on some future occasion to obtain a consensus of opinion from the experts of the profession in this country from which to derive some general rules for the guidance of those who are medically concerned with such cases.

MYIASIS OF THE URINARY PASSAGES.

MYIASIS of the urinary passages is a very rare condition. In 1909 René Chevrel analysed all the reported cases, of which he could find only 20. He regarded 6 as authentic, 10 as probable, and 4 as doubtful, and he added a case under his own observation. In the *Journal of the American Medical Association* of Dec. 26th, 1914, Dr. E. F. King has reported the following case. A man, aged 32 years, who had been suffering from chronic posterior urethritis for some months, on Oct. 29th, 1914, brought an object which he said he had passed in the urine. This was later identified by Dr. L. O. Howard, entomologist of the United States Department of Agriculture, as the larva

¹ *Journal of Nervous and Mental Disease*, December, 1914, p. 785.

² *THE LANCET*, Oct. 4th, 1913, p. 1005.

of the *Fannia scalaris*. The patient had voided similar objects on Oct. 19th and 28th, but had not brought them, fearing he would be laughed at. He lived on a farm and was in the habit of micturating into a glass which he kept in a shed turned upside down and which he always rinsed after using. He used a syringe of hard rubber for urethral injections. This he kept wrapped in paper in a closed drawer. Apparently, therefore, the larvæ could not have been derived from the glass or the syringe. About 8 o'clock in the morning while digging he was seized with an intense desire to micturate, he hurried to the shed, felt something pass with the urine, and found the larva in the glass. He did not see it move. When Dr. King received it two hours later it was in a perfectly fresh condition. The patient could not find any larvæ in the fæces after a diligent search. Dr. King thinks that the urethra was probably infected while the patient was at stool, flies being attracted by the urethral discharge. In Chevrel's case the patient was a paralytic woman, aged 55 years, who was left alone all day on a chair which had been converted into a commode, the receptacle for the dejecta being placed on the floor. Flies were able to swarm freely about the buttocks. For about two months she daily passed larvæ with the urine. Chevrel thinks that while dipterous ova may be carried into the urinary passages by sounds or catheters or in water used for irrigating, they generally are deposited about the meatus urinarius, where are found the conditions favouring their growth—namely, darkness, moisture, warmth, oxygen, and food, the last being furnished by a gonorrhœal or other discharge. The eggs hatch promptly, and the young larvæ pass into the urethra and bladder in search of food. They require but little oxygen, for Chevrel kept them under water for hours and found them still active when taken out. Infection is favoured by sleeping in hot weather with the genital region uncovered.

Brevet-Colonel William Heaton Horrocks, R.A.M.C., has been appointed Honorary Surgeon to the King, in the place of the late Surgeon-Major-General Sir John By Cole Reade, K.C.B.

THE second volume of the annual report of the London County Council for the year 1913 has just been issued and comprises the report of the Asylums Committee for the year 1913-14.

Dr. Llewellyn P. Phillips, professor of medicine at the Cairo Medical School, has been appointed Physician in Ordinary to S.M. the Sultan of Egypt.

THE Executive Committee have appointed Dr. J. A. Murray to be Acting Director of the Imperial Cancer Research Fund.

DEATH OF A VETERAN SCOTTISH PRACTITIONER.—The death of Dr. Robert Leys took place at his residence, Ellon, on Jan. 13th. Dr. Leys commenced practice in Ellon as far back as the year 1853, and was for many years one of the best-known practitioners in the district. He was for several years a member of the Ellon town council and a justice of the peace. Dr. Leys studied medicine at King's College, Aberdeen, and graduated M.D. there in 1857. He was held in high esteem in the district, but for the last 17 years had been living in retirement, having attained an advanced age.

THE CHADWICK LECTURES ON WAR AND DISEASE.

THE first of a series of three Chadwick lectures on War and Disease was delivered in the lecture hall of the Royal Society of Arts on Jan. 15th by Colonel F. M. SANDWICH, M.D. The chair was occupied by Sir WILLIAM COLLINS, K.C.V.O., the chairman of the Chadwick Trust.

Sir WILLIAM COLLINS said the trustees had been so encouraged by the new departure made two years ago in giving these public lectures that it was proposed to continue in the same lines. Under authority conferred by the Trust a prize of £50 and the Chadwick gold medal was offered to the medical officer of the navy and to the medical officer of the army who most distinguished themselves in promoting the health of the sailors and soldiers. The Directors-General of the Navy and of the Army Medical Departments had given their cordial approval and support, and nominations had been received by the trustees. It was hoped that the awards would shortly be announced. The period which Dr. Sandwich would deal with in this lecture was the century of Chadwick, for he was born in 1800 and died in 1890. It was also the century of Florence Nightingale, who died in 1910. That lady was a great friend of Chadwick and the two were closely associated in military and sanitary reform. It was Chadwick who introduced Miss Nightingale to John Stuart Mill and to Kinglake. The work of Florence Nightingale in connexion with the military aspect of sanitary reform was beyond all praise, and she showed how informed gentleness and humane efficiency could produce results which previously had been unthought of. Yet when attacking incompetence and inefficiency in high places she could be very caustic.

Dr. SANDWICH devoted this lecture to a consideration of continental wars of the nineteenth century. He said there was a general conviction that the success in this present great struggle must lie with those whose spirit endured, whose faith in themselves and their cause never wavered, and that the destiny of nations lay in the spirit and moral of the troops. But the medical officer realised that the sternest determination and the most inflexible courage were, to a considerable extent, dependent upon physical conditions. Pain, hunger, cold, and sickness lowered the vitality and tended to reduce physical and moral endurance, and these complications might do more mischief than the enemy's bullets. But our army was now better fitted, equipped, and instructed for a prolonged struggle than in any previous campaign. In only one previous instance had sanitary science fitted the soldier for his task—namely, in the Russo-Japanese War of 1904-5. In recent wars fought on land, of each 100 deaths 20 were from wounds, 80 from disease; the Russo-Turkish war of 1877-8 showed this proportion. In the American Civil War there were 3 deaths from disease to 1 from wounds. In the French expedition to Madagascar in 1895 there were 29 killed in action, while 7000 died from disease. In the United States army during the Spanish-American War 14 died from disease to every 1 killed in action. The British losses from disease in the South African War were terrible. On the outbreak of hostilities with Russia the Japanese were prepared for all eventualities, and by attention to the smallest details they were able to show a proportion of 1 dead from disease to 4 dead from wounds. Their aim had been to adapt the best hygienic principles to the life of the soldier in times of peace as well as in those of war. Hygiene was but little considered until the public awoke to the necessity of enacting certain laws for the preservation of health in the great cities. The outbreak of epidemics in these cities frightened local authorities into inquiries as to their cause, and led to the appointment of the first Sanitary Commission, of which Chadwick was a distinguished member; and though he retired from official life in 1854 his hygienic zeal never abated, and when at this time the Crimean War was in full swing he inquired into the sanitary conditions of our army, for it was suffering from extreme, and to some extent preventable, privations in the Crimea. The British public were aroused to a realisation of these by the letters of William Howard Russell, the great war correspondent, to the *Times*. Even in the time of Napoleon's wars the care of the

sick and wounded was lamentably neglected, although there were some distinguished surgeons on his staff. In 1854 the Army Medical Department consisted of the Director-General, an assistant, and about six clerks. The head of the department struggled in vain, on the outbreak of the war, to create every detail of supply, but on grossly insufficient funds, and he had no trained staff. It was small wonder that many diseases decimated the fighting line. In January, 1855, there were 23,076 sick in the ranks. At this time Sidney Herbert was appointed Secretary of War. He was a man of fearless and independent character, and with the coöperation of Florence Nightingale he got a staff of nurses at the front, and drastic reforms were introduced in the spring of 1855; a Commission was sent from home, and they caused important sanitary works to be carried on, including the construction of hospitals and the improvement of the water-supply. The death-rate, which in February, 1855, had reached 42 per cent., began to fall, and in June it was only just over 2 per cent. A Royal Commission appointed in 1857 to inquire into the medical administration of the army revealed that not only was the mortality due to disease in war time enormous, but that of the army in peace time was double that among the civilian population. The high figures in barracks were due to their grossly insanitary condition. In the sleeping arrangements only 23 inches of space per man was allowed and the beds were practically touching each other. Sometimes four men slept in each bed. In spite of many representations, comparatively little change occurred until the Crimean War had drawn public attention to the facts. Next, the health of our troops in India received attention. Florence Nightingale stated that 60 per 1000 of our troops perished annually in India, and preventable disease among them cost the nation £388,000 in a year. It was thought that the high mortality there was inevitable and was due to climatic conditions, and it was the custom to bleed men on the voyage out, under the idea that "blood freshly made would be of a quality germane to the new climate." In 1860 the first army medical school was founded at Chatham to meet this increasing experience. It was subsequently removed to Netley. Its first professor was Dr. Edwin Parkes, who had written brilliant monographs on dysentery and cholera in India, and whose "Manual of Practical Hygiene" long remained the standard work on the subject. Parkes was continually endeavouring to improve the physique and conditions of the soldiers, for at the date he wrote officers and men were clothed in a manner which was calculated to hinder the free movements of the body. It was a wonder that such long marches as stood to the credit of some regiments—i.e., 42 miles in 20 hours and 62 miles in 26 hours—could be carried out, especially as the soldier had to carry equipment weighing 55 lb. Fifty years ago, moreover, the British Army was said to be the most intemperate in Europe. The men had a regular ration of rum served out to them, and in the West Indies men had cheap rum in abundance, and it was often contaminated with lead. This did not allay thirst but aggravated it. In 1864 Sir Hugh Rose reduced the spirit ration to one-half. In the American Civil War men who could not be paid owing to lack of funds, so that they could not buy spirits, were healthier and more cheerful than those who bought alcohol. Intemperance in our army had now largely disappeared, and Dr. Sandwith commended the wisdom of the Czar in prohibiting the sale of vodka throughout his dominions during this crisis, and expressed the wish that the magistrates of our great cities might be given greater powers in that direction. Alcohol administered in small quantities after a fatiguing march acted as an appetiser when men did not feel inclined for food, and abstainers under normal circumstances were glad of this aid. Alcoholic excess was partly responsible for the devilish performances of German officers and soldiers with unprotected women. He concluded by paying a high tribute to the organisers in the present war.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held Jan. 14th, Sir W. WATSON CHEYNE, the President, being in the chair.

The Secretary reported the death on Dec. 31st last of Mr. Thomas Bryant, past President, and past member of the

Council and of the Court of Examiners of the College. A vote of condolence was passed expressing the appreciation of the Council of Mr. Bryant as President and in other capacities.

Leave of absence was given to the Conservator of the Museum for the purpose of going to America to deliver a course of five lectures on anthropology at the Western Reserve University, Cleveland, Ohio.

A vote of thanks was given to Mr. G. Buckston Browne for a collection of lithotrites presented by him to the Museum, and a vote of thanks was given to Sir John Tweedy for his interesting and valuable gifts to the library.

It was resolved to contribute a sum of 50 guineas from the funds of the College to the Belgian Doctors' and Pharmacists' Relief Fund.

Sir W. WATSON CHEYNE was reappointed a member of the Court of Governors of the University of Birmingham for three years.

The PRESIDENT reported the delivery by Sir Frederic Eve on Dec. 15th of the Bradshaw Lecture on Acute Hæmorrhagic Pancreatitis, with Remarks on the Etiology of Chronic Pancreatitis. The best thanks of the Council were given to Sir Frederic Eve for his lecture, and he was requested to publish it.

The PRESIDENT stated that the vacancy on the Court of Examiners occasioned by the termination of office by Mr. Bilton Pollard would be filled at the ordinary meeting of the Council on Feb. 11th.

REPORTS OF THE YELLOW FEVER COMMISSION (WEST AFRICA).

THIS Yellow Fever Commission, as our readers may remember, was appointed in January, 1913, by the Secretary of State for the Colonies, with the object of studying the nature and frequency of the fevers occurring among Europeans, natives, and others in West Africa, especially with regard to yellow fever.¹ The members of the Commission are four in number—namely, Sir James Kingston Fowler, Colonel Sir William B. Leishman, Sir Ronald Ross, and Professor W. J. R. Simpson. They have now issued two reports giving a general account of the steps taken to acquire information and the results so far obtained.

First Report.

The first report, dated Oct. 7th, 1913, is signed by the three first of the above-named members of the Commission, Professor Simpson having been absent in East Africa advising the authorities there on health matters. A brief review is given of the circumstances which led up to the appointment of the Commission and the measures taken to organise and prosecute the investigation. Copies of the forms drawn up and sent out to the West African Medical Staff and to other medical practitioners in the various colonies are appended. In these information was asked for and coöperation in the inquiry invited. Several officers possessing special training and qualifications were appointed to carry out work for the Commission at different centres in West Africa, and one member of the West African Medical Staff, Mr. J. M. O'Brien, on his own initiative, in order to increase his knowledge and experience of the disease, spent his leave in Guayaquil, in the South American State of Ecuador. This town possesses an evil reputation as regards yellow fever, which is endemic there, and often assumes epidemic proportions. Guayaquil, it may be added, is notorious all over the Pacific as one of the chief diffusing centres of the disease in South America. The Commissioners state that already certain scientific observations have been made at Lagos, which if confirmed promise to prove of great importance in relation to the etiology of the malady, and in consequence Dr. Harald Seidelin, the well-known yellow fever expert, was despatched to Lagos to examine the results obtained and to confer with the two local investigators, Dr. J. W. Scott Macfie and Dr. J. E. L. Johnston.

At present the Commissioners are not in a position to make any statement concerning the Lagos observations until they are supported by further evidence. The views previously put forward by the late Sir Rubert Boyce are discussed concerning the alleged immunity against yellow fever possessed by natives, and acquired through attacks of the

¹ THE LANCET, April 26th, 1913, p. 1178.

disease in childhood and possibly again in later life. It is not at present possible to affirm or deny the truth of the theory that natives serve as the reservoir of the virus. The Commissioners are satisfied that of the cases which have been recently diagnosed at Lagos and elsewhere as yellow fever a certain number were true examples of that disease. It is thought very probable that the malady which prevailed in West Africa in 1910-11 and in 1912 was genuine yellow fever. The general measures for the reduction of stegomyia in the towns of the West African colonies appear to be defective, and this matter requires immediate attention by all concerned.

Second Report.

The second report contains a retrospect (1) of yellow fever in West Africa as a whole; (2) of fevers on the ships of the British navy on the West African station; and (3) of yellow fever in the colonies, both British and foreign, on the West Coast of Africa. Some account is also given of the then existing health conditions in the West African colonies during 1862, a year marked by exceptional prevalence of yellow fever. An analysis is furnished of the epidemics of 1910-11 and 1912. Other subjects, such as racial immunity, clinical types of the disease, and its incidence in childhood, are likewise discussed. In setting out their general conclusions the Commissioners say that there is no evidence to show that the infection in each yellow fever outbreak under review had been introduced from outside Africa. The mild nature of the attack in certain cases makes the identification a matter of difficulty. It is therefore essential that in future all cases of fever should be carefully observed and classified in order that, as far as possible, such mild attacks of yellow fever may not pass unrecognised. The attention of all workers at this subject should be directed specially to the discovery of a clinical test for the disease.

The Commissioners do not underestimate the importance of the researches which are being prosecuted in connexion with the nature of the yellow fever virus, and also those concerning appearances by which its presence could be recognised in the body of the stegomyia mosquito. The possibility is admitted that by such researches the desired clinical test may be found, but the extreme practical importance of being able to determine whether a mild case of fever is or is not yellow fever renders it essential that all possible methods should continue to be employed in the clinical study of the malady. The opinion is expressed that the day has gone by for endeavouring by the use of euphemistic terms to conceal the presence of yellow fever, and that the only hope of eradicating the disease lies in boldly facing the facts. Failure to take all possible steps to destroy a focus of yellow fever is regarded by the Commissioners as an offence against the comity of nations. With regard to the very important etiological researches on the nature of the yellow fever virus, carried out at Lagos by Dr. Macfie and Dr. Johnston,² of which mention was made in the first report, the Commissioners reserve their opinion until the issue of their third report, by which time they will have completed the examination of the microscopical and other material which they have received and which illustrate the appearances presented by the "Seidelin bodies" (paraplasma flavigenum) and their possible connexion with the virus of yellow fever. The third report of the Commission should prove very interesting reading.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Liverpool.—As usual, Dr. E. W. Hope's annual report gives in clear and attractive form a picture of the great range of work undertaken by the medical officer of health's department in a great city. We can only select a few matters of interest, practically at random, from the volume. Those who have been familiar with the incidence of enteric fever in Liverpool in years not long past will be struck by the diagrams which are given as to the recent distribution of this disease. The recurring autumnal epidemic used mainly to be made up of cases in the central area of the city, but now, synchronously with the diminution in number of insanitary court houses, an autumnal

rise fails altogether to occur in this area. For the city as a whole, imported cases, and cases attributed to infection by shell-fish, together form a proportion of the total of notified enteric fever cases, which is larger year by year; in 1913 as many as 43 per cent. of the cases are thus accounted for in the report. In that year cockles rather than mussels appear to have been the principal source of infection; the shell-fish were consumed raw or else merely steamed or immersed in hot water till the shells opened. The new measures adopted for treating tuberculosis and recent developments under the National Insurance Act respecting this disease naturally call for much attention in the report. As regards pulmonary tuberculosis, 128 cases were admitted during 1913 to the Fazakerley Sanatorium and 423 to the Park Hill Hospital, which in March of that year was taken over and adapted for the treatment of this disease. Practically all the cases admitted were either insured or dependents of insured. Three "tuberculosis institutes" have been established in Liverpool, to correspond with the "anti-tuberculous dispensaries" mentioned in the Astor Report of 1912. Cases are sent to these institutes by medical men or by the public health or education authorities; comparatively few direct applications from the patients themselves have so far been received. In connexion with the work among children, assistance is given by the Liverpool Invalid Children's Association, particularly in regard to the preparation of the application forms needed if dependents of insured persons are to be admitted into the various homes or institutions available for tuberculosis in children. The completed scheme now coming into operation will as far as possible treat all cases alike, irrespective of their insurance. A considerable amount of domiciliary treatment is given, and Dr. Hope considers that this needs to be put on a more satisfactory footing, so that the patient, by giving a better recognition of the doctor's directions and the doctor by the display of a little more interest in the subject, can unite to "improve the status of official domiciliary treatment." It may be noted that in Liverpool the district sanitary inspectors are fully utilised in the home visiting of notified cases of tuberculosis, where the practitioner agrees to this course being followed. Dr. Hope states that so far as Liverpool is concerned there is no reason to think that the additional amount of attention paid to the treatment of tuberculosis has interfered with the far more valuable and important measures of prevention. The demolition of unhealthy courts and dwellings and their replacement by healthy houses which has been undertaken for so many years still continues; a diagram of the "St. Anne-street Area" before and after its reconstruction is a good object lesson of the thoroughness of the work. Formerly the corporation on account of the cost usually did not buy the public-houses included in areas scheduled for demolition; this policy, however, has now been abandoned; and Dr. Hope highly commends the change. (We would, however, like to see the experiment tried of substituting good working-class restaurants at which beer could be obtained with meals.) New by-laws have been introduced to regulate houses let in lodgings, which give additional powers for dealing with the offences created by not cleansing room floors, stairs, and passages, and the non-separation of sexes. The tenant is now amenable, in addition to the lodger. As regards smoke abatement, great improvement has been effected in recent years by the reconstruction of the furnaces in many factories and the installation of superior appliances for automatic stoking. A new duty has fallen on inspectors from the many complaints of the noise and smell from internal combustion engines, and advice has been given by them on the methods to counteract these nuisances by deodorants and silencers. Public lectures on smoke prevention have been given under the auspices of the University to persons in charge of furnaces with very satisfactory results. The report contains several useful illustrations, though we have some doubt of the moral intended to be drawn from the series of family groups whose photographs appear in the volume.

Metropolitan Borough of Islington.—Mr. A. E. Harris reports the registration of 24 deaths from appendicitis during the year, of which 12 occurred below the age of 20 and 7 below the age of 10. It is noteworthy that the number of deaths registered from this cause has remained at about 24 year by year since 1904. There were 19 cases of poliomyelitis notified; practically no connexion was established between them, and the houses affected were all in

² THE LANCET, May 10th, 1914, p. 1403.

streets lying off main lines of traffic. No secondary case occurred in any household. Mr. Harris's practice is to disinfect the rooms and bedding in every case, the latter being adopted more for the purpose of bringing the infectious nature of the disease before the minds of the people than because it is considered strictly necessary. In the present state of uncertainty as to the conditions under which poliomyelitis is spread, such precautions are considered desirable, though their empirical nature is admitted. The prompt notification and isolation of diphtheria cases in Islington during the year appears to have had a distinct result in limiting the spread of the disease; the 550 cases notified came from 473 houses; in only 34 of these were there two cases in the house and in only 12 houses were there three cases or more. In as many as 427 houses only one case was known. Mr. Harris alludes to a consideration often lost sight of by those who complain of the cost of hospital isolation of infectious diseases in children. The educational authority will not permit any children to attend school from infected houses, and in the absence of isolation many scholars would have to be absent from school six weeks or more, with the result in loss of education and dislocation of the educational machinery, which would entail a considerable cost; what the rate-payers lose in one direction they gain, or nearly so, in another. The Islington series of reports have always some valuable observations on food inspection and adulteration, and the 1913 report is no exception to the rule. Medical officers who are interested in the history and prevalence of adulteration will find much information in Mr. Harris's chapter on this subject. Generally speaking, the efforts made in this borough appear to be effective in getting food adulteration detected and punished, so far as the limited provisions of the present law allow. In particular, Mr. Harris is satisfied that farmers' milk coming straight to London, on Sundays as well as weekdays, is maintained at high quality, and his results should be gratifying to farmers "who are frequently made the scapegoats of interested persons." The least satisfactory feature of the analyst's reports is the frequency of the fraud of substituting margarine for butter. The machinery for detecting the fraud exists and is skilfully used, but the fraud itself is so profitable that the fines inflicted seem to fail to put a stop to it.

VITAL STATISTICS.

VITAL STATISTICS FOR 1914.

THE following statement shows the birth- and death-rates and the rates of infantile mortality in England and Wales and in certain parts of the country during the year 1914, the figures being provisional:—

	Annual rate per 1000 living.			Deaths under one year to 1000 births.
	Births.	Deaths.		
		Crude.	Standardised. ^B	
England and Wales... ..	23·6	13·9	13·6	105
97 great towns, including London	24·9	14·6	14·9	113
145 smaller towns	23·6	12·8	12·9	104
England and Wales less the 242 towns	21·9	13·3	12·2	93
London... ..	24·6	14·4	14·4	103

* The standardised death-rates are the rates which would have been recorded had the sex and age constitution of the populations of the several areas been identical with that of England and Wales as enumerated in 1901. A description of the method of standardising these death-rates is to be found in the Registrar-General's Annual Report for 1911, p. xxix.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8897 births and 6545 deaths were registered during the week ended Saturday,

Jan. 16th. The annual rate of mortality in these towns, which had been 14·0, 21·3, and 19·4 per 1000 in the three preceding weeks, further fell to 18·8 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 14·9, against a corresponding rate of 15·3 per 1000 in London. The annual death-rate last week ranged from 7·2 in Gloucester, 11·2 in Tottenham, 12·9 in Rhondda, 13·0 in Smethwick, and 13·2 in Northampton, to 25·1 in Lincoln, 25·2 in Ipswich, 26·0 in Blackpool, 26·3 in Gillingham, and 28·8 in Merthyr Tydfil.

The 6545 deaths from all causes were 191 fewer than the number in the previous week, and included 454 which were referred to the principal epidemic diseases, against 575 and 487 in the two preceding weeks. Of these 454 deaths, 195 resulted from measles, 76 from whooping-cough, 75 from infantile diarrhoeal diseases, 63 from diphtheria, 34 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·3, or 0·1 per 1000 less than in the previous week. The deaths attributed to measles, which had been 175, 269, and 183 in the three preceding weeks, rose to 195 last week, and caused the highest annual death-rates of 2·1 in Newcastle-on-Tyne, 2·3 in Wigan, 2·5 in Plymouth, 2·6 in Enfield and in Darlington, 3·1 in St. Helens, 3·3 in Huddersfield, 4·6 in Grimsby, and 6·7 in Merthyr Tydfil. The deaths referred to whooping-cough, which had steadily increased from 35 to 93 in the eight preceding weeks, fell to 76 last week, and included 13 in London, 6 in Leeds, 5 in Sunderland, 4 each in Willesden, Bristol, and Liverpool, and 3 in Newcastle-on-Tyne. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 70, 86, and 84 in the three preceding weeks, further fell to 75 last week, of which 20 were registered in London, 6 each in Birmingham and Manchester, and 4 in Bristol. The deaths attributed to diphtheria, which had been 66, 89, and 77 in the three preceding weeks, further fell to 63 last week, and included 15 in London, 5 in Liverpool, and 3 each in Birmingham and Manchester. The deaths referred to scarlet fever, which had been 30, 31, and 35 in the three preceding weeks, were 34 last week, of which 10 occurred in London, 3 in Sheffield, and 2 each in Manchester and Preston. The fatal cases of enteric fever, which had been 12, 20, and 15 in the three preceding weeks, further declined to 11 last week, and included 2 in Portsmouth.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 5035 to 4153 in the seven preceding weeks, had further fallen to 3952 on Saturday last; 338 new cases were admitted during the week, against 348, 436, and 321 in the three preceding weeks. These hospitals also contained on Saturday last 1641 cases of diphtheria, 82 of measles, 61 of enteric fever, and 34 of whooping-cough, but not one of small-pox. The 1702 deaths from all causes in London were 36 less than in the previous week, and corresponded to an annual death-rate of 19·6 per 1000. The deaths referred to diseases of the respiratory system, which had been 270, 562, and 497 in the three preceding weeks, further fell to 472 in the week under notice, but were 72 in excess of the number in the corresponding week of last year.

Of the 6545 deaths from all causes in the 96 towns, 211 resulted from different forms of violence and 463 were the subject of coroners' inquests, while 1742 occurred in public institutions. The causes of 64, or 1·0 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Hull, Newcastle-on-Tyne, and in 66 other smaller towns. Of the 64 uncertified causes 13 were registered in Liverpool, 12 in Birmingham, 5 in Gateshead, and 3 in London.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,344,400 persons at the middle of this year, 1123 births and 1027 deaths were registered during the week ended Saturday, Jan. 16th. The annual rate of mortality in these towns, which had steadily increased from 17·7 to 24·5 per 1000 in the five preceding weeks, declined to 22·8 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 16·8, against 14·9 per 1000 in the large English towns. The annual death-rate last week ranged from 14·1 in Kilmarnock, 14·9 in Leith, and 15·1 in Motherwell, to 27·4 in Greenock, 28·2 in Dundee, and 29·5 in Ayr.

The 1027 deaths from all causes were 73 fewer than in the previous week, and included 92 which were referred to the principal epidemic diseases, against numbers increasing from 77 to 117 in the three preceding weeks. Of these 92 deaths, 56 resulted from whooping-cough, 10 from diphtheria, 9 from scarlet fever, 7 from infantile diarrhoeal diseases, 7 from measles, and 3 from enteric fever, but not

one from small-pox. The mean annual death-rate from these diseases was equal to 2.0, against 1.3 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 28, 44, and 55 in the three preceding weeks, were 56 last week, and included 30 in Glasgow, 11 in Dundee, 5 in Aberdeen, and 4 in Clydebank. The deaths referred to diphtheria, which had been 16, 14, and 21 in the three preceding weeks, fell to 10 last week, of which 4 were registered in Edinburgh and 2 in Aberdeen. The fatal cases of scarlet fever, which had been 15, 17, and 13 in the three preceding weeks, further fell to 9 last week, and comprised 6 in Glasgow and 3 in Aberdeen. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 12, 11, and 17 in the three preceding weeks, fell to 7 last week, of which 4 belonged to Glasgow. The deaths referred to measles, which had been 5, 10, and 7 in the three preceding weeks, were again 7 last week, and comprised 6 in Dundee and 1 in Glasgow. The 3 fatal cases of enteric fever occurred in Glasgow, and were slightly in excess of the average in recent weeks.

The deaths referred to diseases of the respiratory system, which had steadily increased from 154 to 265 in the five preceding weeks, further rose to 275 in the week under notice; 35 deaths resulted from different forms of violence, against 42 and 32 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 693 births and 568 deaths were registered during the week ended Saturday, Jan. 16th. The annual rate of mortality in these towns, which had been 17.0, 27.8, and 26.5 per 1000 in the three preceding weeks, further declined to 24.4 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 18.8, against 14.9 and 16.8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 29.2 in Dublin (against 19.6 in London and 24.2 in Glasgow), 21.7 in Belfast, 29.9 in Cork, 27.8 in Londonderry, 17.6 in Limerick, and 30.4 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 18.3 per 1000.

The 568 deaths from all causes were 47 fewer than in the previous week, and included 48 which were referred to the principal epidemic diseases, against 42 and 38 in the two preceding weeks. Of these 48 deaths, 14 resulted from infantile diarrhoeal diseases, 12 from measles, 10 from whooping-cough, 8 from scarlet fever, 3 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.1, against 1.3 and 2.0 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 9, 10, and 11 in the three preceding weeks, further rose to 14 last week, and included 7 in Dublin and 2 in Belfast. The deaths referred to measles, which had been 9, 9, and 6 in the three preceding weeks, rose to 12 last week, and comprised 10 in Belfast and 2 in Cork. The fatal cases of whooping-cough, which had increased from 3 to 11 in the five preceding weeks, were 10 last week, of which 5 belonged to Belfast and 3 to Dublin. The deaths attributed to scarlet fever, which had been 3, 9, and 2 in the three preceding weeks, rose to 8 last week, and comprised 5 in Belfast, 2 in Cork, and 1 in Waterford. The deaths referred to diphtheria were recorded in Belfast, Cork, and Portadown, and the fatal case of enteric fever in Dublin.

The deaths referred to diseases of the respiratory system, which had been 96, 162, and 159 in the three preceding weeks, rose to 164 in the week under notice. Of the 568 deaths from all causes, 140, or 25 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 25, or 4.4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1.0 per cent.

EDINBURGH UNIVERSITY CHAIR OF MEDICINE.—

Eight applications have been made for the chair of practice of medicine in the University of Edinburgh, rendered vacant by the retirement of Professor John Wyllie from ill-health. The patronage of the chair, which was previously the gift of the town council of Edinburgh, was by the Universities Act of 1858 transferred to seven curators—three nominated by the University Court and four by the town council. The following is a list of the candidates: Dr. Edwin Bramwell, Dr. J. J. Graham Brown, Dr. John D. Comrie, Dr. Robert A. Fleming, Dr. G. Lovell Gulland, Dr. Alexander Morison, Dr. Harry Rainy, and Dr. Chalmers Watson. With the exception of Dr. Morison, who is senior physician to the Great Northern Central Hospital, London, all the candidates are physicians to the Royal Infirmary and lecturers in Edinburgh.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

The following appointments have been made:—Fleet-Surgeon: H. L. Penny to the *Vivid*, additional, for disposal. Staff-Surgeon: T. E. Blunt to the *Pembroke*, additional, for disposal. Surgeon: G. F. B. Page to the *Vivid*, additional, for disposal; and W. A. S. Duck, A. Fairley, and L. Moss to the *Victory*, additional, for disposal. Temporary Surgeons: J. A. Gordon, P. A. Lemass, J. F. McQueen, and G. L. Ritchie to the *Victory*, additional; F. T. Fisher to the *Pembroke*, additional, for disposal; and E. M. Lauderdale to the *Victory*, additional, for Haslar Hospital. James Grimoldby has been granted a temporary commission as Surgeon in His Majesty's Fleet.

ROYAL NAVAL VOLUNTEER RESERVE.

Temporary Commissions in the Royal Naval Volunteer Reserve have been issued as under:—Lieutenants: Ambrose Congreve, Redmond Walter McGrath. Surgeon: Frederick William Willway.

Surgeon Probationer: J. C. Sinclair to the *Woolwich*, for the *Badger*, vice S. R. Prall (resigned).

ARMY MEDICAL SERVICE.

Brevet Colonel William H. Horrocks is appointed an Honorary Surgeon to the King, vice Surgeon Major-General Sir J. B. C. Reade, K.C.B. (dated Nov. 6th, 1914).

Colonel Thomas J. O'Donnell, D.S.O., is retained on the active list under the provisions of Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary (dated Jan. 18th).

ROYAL ARMY MEDICAL CORPS.

Supernumerary Captain Wilfred W. Treves is restored to the establishment (dated Jan. 14th).

Supernumerary Captain John Gilmour is restored to the establishment (dated Jan. 7th).

Lieutenant Robert William Walter Vaughan relinquishes his temporary commission (dated Dec. 31st, 1914).

Lieutenant William H. Johnston resigns his commission (dated Jan. 16th).

Lieutenant John Spencer-Daniell relinquishes his temporary commission (dated Jan. 19th).

The undermentioned to be temporary Captains:—Gordon Morgan Holmes (dated Nov. 5th, 1914), Claude Goulesbrough (dated Dec. 28th, 1914) and James Ewing (dated Jan. 5th).

Temporary Lieutenant Thomas Renton Elliott to be temporary Captain (dated Jan. 14th).

The undermentioned to be temporary Captains whilst serving with the Red Cross Hospital, Netley:—Dated Jan. 19th: Donovan Blaise Pascall and Walter Gibson Marsden.

The undermentioned to be temporary Lieutenants:—Dated Nov. 2nd, 1914: Francis Hubert Storey. Dated Dec. 15th, 1914: Archibald Hector Maccoll Robertson. Dated Dec. 16th, 1914: Charles Cavanagh. Dated Dec. 17th, 1914: George William Fleming. Dated Dec. 18th, 1914: Donald Campbell. Dated Dec. 20th, 1914: Alfred George Caldwell. Dated Dec. 21st, 1914: Robert John Jones, Albert Edmund Samuel Martin, Charles Sand, Herbert Harland Raw, George Llewellyn Brunton, and Roland Henry Fletcher. Dated Dec. 22nd, 1914: Francis De Sales McMenamin. Dated Dec. 23rd, 1914: Leslie Charles Johnston, George Mitchell, Archibald Langwill, Alfred Squire Taylor, and Lacey Bathurst. Dated Dec. 24th, 1914: John Warwick. Dated Dec. 28th, 1914: Jerome Ivo O'Sullivan, Michael Sullivan, Robert Archibald Slater Sunderland, Mortimer Hynes, Norman Garfield Thornley, James Sackville Martin, Robert McLeod Veitch, Edward Mansfield, John Hannay Douglas, Martin Melvin Cruickshank, David Cochrane Hanson, William De Malet Peyton, Harold John Pickering, David Haig, Alan Everley Taylor, Edgar Coningsby Myott, Harry Stanger, Sylvester Davidson Fairweather, Hugh Faulkner, Henry William Turner, Peter Reid, James Allison, Herbert Donald Robertson, Cyril Charles Coleby Kirke White, Charles Henry Nash, and James Gaston. Dated Dec. 30th, 1914: Alexander Kirkpatrick Cosgrave, William Norman Watson, Harold Bengt Atlee, Leslie Douglas Roberts, Ellis Thomas Evans, Samuel Robert Richardson, Harry Hunter Carter, Richard Ernest Sedgwick, Frederick Dearden Walker, and William Taylor. Dated Dec. 31st, 1914: Hubert Cowell Mulkern, Francis O'Neill, George Thomson Mowat, and Mortimer Henry Pearson. Dated Jan. 3rd: Norman Peace Lacy Lumb and Dawson Cameron Robertson.

INDIAN MEDICAL SERVICE.

Major R. A. Lloyd to be temporary Lieutenant-Colonel whilst in charge of No. 12 Indian General Hospital at Brockenhurst (dated Nov. 25th, 1914).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in their rank: Robert A. Anderson, Hallowes L. Addison, John G.

Bennett, George B. Hadden, Francis J. Hallinan, Thomas P. Inglis, William M. Lansdale, Francis C. Lapage, David S. Martin, and Thomas Sheedy.

TERRITORIAL FORCE.

Army Medical Services.

Lieutenant-Colonel Conrad T. Green, from the Welsh Casualty Clearing Station, to be Assistant Director of Medical Services, Welsh Reserve Division, and to be granted the rank of Colonel (temporary).

Lieutenant-Colonel Harry T. Challis, from the 3rd East Anglian Field Ambulance, to be Assistant Director of Medical Services, East Anglian (Reserve) Division, with the temporary rank of Colonel.

Yeomanry.

Yorkshire Hussars (Alexandra, Princess of Wales's Own): Surgeon-Captain Walter Henry Cheetham to be Surgeon-Major (temporary).

Royal Army Medical Corps.

Surgeon-Major Edward Herbert Myddelton-Gavey (Retired List, Honourable Artillery Company) to be Major.

3rd East Anglian Field Ambulance: Captain William I. Cowell resigns his commission on account of ill-health.

2nd Highland Field Ambulance: Captain James Forbes MacIntosh to be Major (temporary).

1st West Riding Field Ambulance: To be Lieutenants: Edwin Samuel George Fowler and Henry Whitterton Robinson.

3rd London General Hospital: Stanley Herbert Warren to be Captain, whose services will be available on mobilisation. To be Lieutenants: John Bromley Rawlins and Cecil Rhodes Harrison.

3rd Scottish General Hospital: Captain Alexander J. Archibald, from the 4th Scottish General Hospital, to be Captain.

1st London (City of London) Sanitary Company: Lieutenant Cresacre G. Moore to be Captain (temporary).

2nd London Sanitary Company: To be Lieutenants: Patrick Albert Galpin, George Gordon Johnstone, George Leslie Eastes, Gerald Quin Lennane, George William Ellis, Walter Key Parbury, John H. Wood, and Ernest B. Pike.

2nd London Casualty Clearing Station: To be Captains: George Herbert Hunt and Lionel Colledge.

2nd North Midland Field Ambulance: Lieutenant Horace Guy L. Haynes, from Attached to Units other than Medical Units, to be Lieutenant.

1st Northumbrian Field Ambulance: The undermentioned Lieutenants to be Captains (temporary): Edward B. Kitching and Joseph W. Craven.

2nd Northumbrian Field Ambulance: William Craig Stewart to be Lieutenant.

1st London (City of London) General Hospital: Charles Ernest West to be Captain, whose services will be available on mobilisation.

4th Northern General Hospital: George Samuel Levis to be Captain, whose services will be available on mobilisation. Plomer William Young to be Captain, whose services will be available on mobilisation.

3rd Southern General Hospital: James Frederick Robinson to be Captain, whose services will be available on mobilisation.

South Wales Mounted Brigade Field Ambulance: John Ambrose Cooke to be Lieutenant.

3rd Home Counties Field Ambulance: Henry John Brownrigg and Philip Theodosius Jones to be Lieutenants.

1st East Lancashire Field Ambulance: Lieutenant Stanley Hodgson, from Attached to Units other than Medical Units, to be Lieutenant.

2nd East Lancashire Field Ambulance: John James Hummel to be Lieutenant.

2nd West Riding Field Ambulance: William Herbert Smailes and Digby Wrangham Hardy to be Lieutenants.

1st Northern General Hospital: Major Frederick C. Pybus, from the permanent personnel to the list of officers whose services will be available on mobilisation. Captain Daniel W. Patterson, from the list of officers whose services will be available on mobilisation to the permanent personnel.

3rd Northern General Hospital: The undermentioned to be Lieutenants: Arthur Robertson Wightman and George Ewart Martin.

Notts and Derby Mounted Brigade Field Ambulance: Frank Standish to be Lieutenant.

West Riding Casualty Clearing Station: Lieutenant-Colonel William McGregor Young, from the 2nd West Riding Field Ambulance, to be Lieutenant-Colonel.

The undermentioned to be Lieutenants: Charles Marsh Gozney and Arthur Stuart Hebblethwaite.

Sanitary Service: Albert Henry Bygott to be Captain, whose services will be available on mobilisation.

Attached to Units other than Medical Units.—To be Majors (temporary): Captain Matthew B. Ray, Captain Robert

Thornton, and Captain Vincent Howard. To be Captains (temporary): Lieutenant George C. Jeaffreson and Lieutenant Richard V. Favell. Lieutenant Cecil W. Rowntree is seconded. To be Lieutenants: Hugh Douglas McCrossan, Harold Francis Lewis Hugo, and Thomas Rhind.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Captain Edward P. Minett, from the 6th London Field Ambulance, to be Captain.

TEMPORARY COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

It is notified by the War Office that there are several vacancies for temporarily commissioned officers in the Royal Army Medical Corps. Candidates should be fully qualified medical men, under 40 years of age. Applications should be made at once to the Secretary, War Office, Whitehall.

OUTFIT ALLOWANCES.

By a recent Army Order all officers granted permanent first commissions in the R.A.M.C. since August 4th and during hostilities will receive an outfit allowance of £50, to include cost of camp kit. Officers granted temporary first commissions will receive £30 and £7 10s. for camp kit.

DEATHS IN THE SERVICES.

Deputy Surgeon-General George Alder Watson, I.M.S., Bengal Army, retired, at the age of 83, at his residence, Hendre, Cheltenham, on Jan. 12th. He entered the Bengal Medical Service in 1855, and during the Indian Mutiny served with the 6th Battalion Bengal Artillery at Mhow in 1857, at the siege of Dhar, and also in the actions near Mundisore and Goorarea (medal and clasp). He served in the Afghan War of 1879 and took part in the advance on Kandahar and Kelat-i-Ghilzai (medal). He retired in 1885.

The King has given to Temporary Surgeon James Charles Baggs, R.N., late medical officer of health, Monthon Puket, authority to wear the Insignia of the Fourth Class of the Order of the Crown of Siam, which has been conferred upon him by His Majesty the King of Siam, in recognition of valuable services rendered.

THE BEQUESTS OF THE LATE DR. I. BURNEY YEO.—Dr. I. Burney Yeo, emeritus professor of medicine at King's College, whose death was recently recorded in our columns, left estate valued at £95,413, with net personalty of £94,366. By his will he left £3000 to the Royal Medical Benevolent Fund to found an annuity fund to be known as "The Burney Yeo Bequest"; £3000 to the Royal Medical Benevolent College, Epsom, for a similar purpose; and £5000 to King's College (London) Hospital Medical School for a "Burney Yeo Fund" to be used for furthering the success of the school. After making some personal bequests he left the ultimate residue of his estate, one moiety to the Royal Medical Benevolent Fund and the other to the Royal Medical Benevolent College. The work of the Royal Medical Benevolent Fund is regularly recorded in our columns, and our readers know how invaluable it is. The medical foundation of Epsom College offers educational and pecuniary advantages of the highest sort to the sons of medical men. The generous bequest to the College will materially help towards the £7000 a year which is required for the relief of urgent cases. Dr. Burney Yeo by his disposition of his fortune has become a great medical benefactor of the medical profession.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.—The usual monthly meeting of the executive committee of this society was held on Jan. 15th, Dr. F. J. Allan in the chair. The reports were considered on members permanently incapacitated, of whom there are now 42 receiving annually over £4000 in sickness benefit. The society provides, practically, an annuity to age 65 of from £1 1s. to £3 3s. per week for each member so afflicted. The year, as a whole, has been highly successful. About 120 members are serving either at the front or with their regiments at home and in the colonies. So far only three claims have been made as a direct result of the war, two being from illnesses contracted owing to exposure and overwork and one from a death resulting from wounds. Applications are constantly being received from younger members of the profession taking temporary commissions in the Royal Army Medical Corps or serving in the various Red Cross and base hospitals. All inquiries in respect of these should be addressed to the secretary, Mr. Bertram Sutton, 300, High Holborn, W.C.

Correspondence.

"Audi alteram partem."

THE PRESS AND ANTITYPHOID INOCULATION.

To the Editor of THE LANCET.

SIR,—I notice in this evening's issue of the *Evening Standard* a full-page advertisement (p. 13) on behalf of the "British Union for the Abolition of Vivisection." The antivivisectionists can be ignored on account of their stupidity, but this particular advertisement deserves the most severe censure in that it is anti-recruiting.

The only way to deal with such a paper is on their own lines—commercial. I hope, therefore, that all medical men, like myself, will in future refuse to buy it.

I am, Sir, yours faithfully,

HUNTER TOD.

Upper Wimpole-street, W., Jan. 19th, 1915.

ANATOMY AT THE PRIMARY FELLOWSHIP EXAMINATION.

To the Editor of THE LANCET.

SIR,—I have been asked repeatedly by other people than unsuccessful candidates to write to you about the questions being set in the anatomical part of the primary examination for the F.R.C.S. The trouble is that this, which used to be a perfectly straightforward though difficult examination in topographical anatomy, seems now to be tending to become in addition a test of the candidate's knowledge of the more philosophical side of the science. I hesitate to add to the troubles which I know surround the examiners for the Primary Fellowship at all times, but I think that they may possibly bear with or even welcome the experience of one who has served a ten years' apprenticeship in the post which they now fill. It should be remembered that the primary examination is the point at which most candidates for the keenly sought diploma of Fellow are rejected, and the examiner's chief duty is to do his utmost to prevent men passing until they are well enough grounded in anatomy to be able to make the most of the higher teaching in surgery which they are to receive later.

Anatomy has two sides. Firstly, a working knowledge of all the parts of a most complicated machine; this is topographical or descriptive anatomy. Secondly, the philosophical study of why all these parts are as they are, a study which is often though perhaps loosely called morphology and depends upon a previous acquaintance with the allied sciences of comparative anatomy, embryology, anthropology, and physics. In my earlier days as an examiner I thought that this study of morphology, with its fascinating suggestions and ever-changing theories, was the very thing to broaden the mind of the young surgeon and keep him from becoming a mere mechanic; but I am sorry to say that experience has greatly modified this view. I still think that a year's practical work at comparative anatomy and embryology would be a most excellent training for the student of human anatomy, but very few medical students have this year to give, and my experience leads me to think that if morphological

questions are to become a feature of this examination candidates will seek the aid either of small text-books, which they will try to learn by heart, or of crammers whom they will trust to gauge quickly and skilfully the range of knowledge which each examiner has and the kind of questions he is likely to ask.

The average time which a candidate presenting himself for the first time for this examination spends on learning his anatomy and physiology is, I think, from 20 months to two years. This is not a bit too long for him to learn his way thoroughly and confidently about the human body. But if morphology is expected in addition the technical pilot's knowledge of the body must suffer, and the subject is so vast that it must always be a chance whether a man happens to be able to do justice to a morphological question or not. If he has had the question intelligently anticipated for him he, of course, scores heavily, and may thus make up for serious gaps in his knowledge of the real anatomy of man.

My point is that a surgeon should be at home in any part of the human body, and a clever man can just get this knowledge in two years or a little less. To ask more is to endanger the acquisition of this real knowledge and to substitute for it, to some extent, an ill-digested mass of theory derived from text-books and class notes. Perhaps I am unduly hard on the value of the scientific side of anatomy, although it is my hobby; but I am only considering now the education of the young surgeon, and am anxious to remind myself and others that what we examiners ask the students will learn—usually in the easiest and least permanent way. A practical knowledge of the body is so essential and so easily detected that I am loth to see candidates given the chance of substituting for it a second-hand knowledge of the more interesting though less useful science of morphology.

I am, Sir, yours faithfully,

St. Thomas's Hospital, Jan. 13th, 1915.

F. G. PARSONS.

THE PHARMACOPŒIAL DOSE.

To the Editor of THE LANCET.

SIR,—I am instructed on behalf of the pharmacists of Great Britain to solicit your aid in calling the attention of the medical profession to the wording of a portion of the preface to the new British Pharmacopœia. In that preface the following statement is made:—

It must be clearly understood that the "doses" mentioned in the Pharmacopœia are not authoritatively enjoined by the Council as binding upon prescribers. They are intended merely for general guidance, and represent in each instance the average range of the quantities which, in ordinary cases, are usually prescribed for adults. The medical practitioner will exercise his own judgment and act on his own responsibility in respect of the amount of any therapeutic agent he may prescribe or administer. Where, however, an unusually large dose appears to be prescribed, it is the duty of the pharmacist or dispenser to satisfy himself that the prescriber's intention has been correctly interpreted.

As a consequence a somewhat onerous obligation is cast upon pharmacists, and although there is not the slightest reason to suspect that the members of the medical profession, speaking generally, will do anything to render the task of the pharmacist more difficult, it is felt that if the attention of practitioners were specially directed to the new condition of things they would be more prepared to coöperate in those few cases where it might be necessary for

a pharmacist to refer back a prescription to the prescriber.

If it could be arranged as a uniform practice that where a practitioner orders an unusually large dose of any particular potent drug such dose should be initialled by the prescriber, all possibility of ambiguity would thereby be removed.

I am, Sir, yours faithfully,

W. J. UGLOW WOOLCOCK,
Secretary, Pharmaceutical Society of
Great Britain.

Bloomsbury-square, W.C., Jan. 15th, 1915.

NON - PANEL PRACTITIONERS AND INSURANCE ACT CERTIFICATES.

To the Editor of THE LANCET.

SIR,—Previous to the passage of the National Insurance Act, and since, I have been a very active and strong opponent of the "medical benefit" clauses of the Act. I have always considered it to be, and still hold the same opinion, derogatory to the members of the profession to accept service on the panel on the terms and conditions under which service is rendered. During the operation of the Act I have been consulted by large numbers of insured persons, and when necessary have given them certificates of illness as a non-panel practitioner, which have always been accepted by the Approved Societies of which they were members, and their so-called "sickness benefit" has been paid. In consequence of the new scheme embodied in Memorandum 211/I.C. on the question of "certificates for sickness benefit," whereby all certificates have to be uniform, I, on the suggestion of the National Medical Union, wrote to the clerk of the London Insurance Committee requesting him to send me a supply of the "official certificates" for use in the case of insured persons who may consult me in the future. The reply I received is given below.

In view of the decision in the case of "Heard v. Pickthorne" this appears to me an attempt to "bluff" non-panel practitioners and to force them to place their names on the panel.

I am, Sir, yours faithfully,

London, Jan. 13th, 1915.

JOHN MACKEITH.

[ENCLOSURE.]

With reference to your letter of Jan. 3rd, 1915, I have to inform you that the Committee are able to supply forms for medical certificates to practitioners who are on the panel and also to those practitioners with whom insured persons have been granted permission to make their own arrangements. As you are not on the London panel, and further, as no insured person has been allowed to make his own arrangements with you, it is not possible for the Committee to supply you with certificate forms as you request.

I am, &c.,

(Signed) THOMAS BATEY,
Clerk of the Committee.

To the Editor of THE LANCET.

SIR,—The following are two incidents illustrating the latest attempts on the part of the Government to crush such of us as do not approve of the National Insurance Act. One of our members has reported to me that an insured patient under his care complained that although her sick money had been paid up to the end of the year it was now being withheld owing to his certificate being of no use because not on the proper form. He thereupon wrote to the clerk of the Local Insurance Committee requesting to be supplied with a book of the new forms, but was told that his request could not

be entertained as such forms were only issued to panel doctors. He has since forwarded the correspondence to the Insurance Commissioners with a request for the redress of this injustice, which seems to me about as hopeful as a complaint from the shepherd to the wolf would be, more particularly seeing that he has since found out that on receipt of his request the clerk wired to the Commissioners for instructions.

In a second case of deadlock our member prompted the insured patient to write to the secretary of her approved society pointing out that as she had been regular in her subscriptions she expected them on their part to be prompt in their payments, seeing that she had complied with the law by presenting the certificates of a qualified medical man. He wrote on his own account pointing out that the society's action was not only distinctly illegal, but also calculated to damage him, and that failing a retraction and apology within 48 hours he would take the case into the law courts. The retraction and apology were forthcoming within the time limit.

I forward these examples of injustice not as a plea for help from the powers that be, or should be, for non-panel men have learnt to be self-reliant, but simply as a further example of the curious fact that in borrowing this national insurance scheme from its makers the Government have gone the whole hog in the assimilation of German methods of ruthlessness mixed with bluff. It has never been easy to tell what the General Medical Council might or might not hold to be infamous conduct. Had they so considered the tearing up of the pledge and undertaking they might have saved the profession much loss of dignity and the general public much monetary loss and suffering, but they apparently had no foreknowledge of the importance since attributed to "scraps of paper." Such is the part played by time and chance in the affairs of men.

Of the unpopularity of the National Insurance Act there are many signs, not the least significant being the spectacle of the Minister on whose shoulders the mantle of Elijah has been unloaded wandering in search of a safe seat.

I am, Sir, yours faithfully,

FRANCIS HEATHERLEY,
Honorary Secretary, Liverpool Non-panel Union.

Rock Ferry, Jan. 18th, 1915.

THE DIAGNOSIS OF PANCREATITIS.

To the Editor of THE LANCET.

SIR,—One heading only is absent from Sir Frederic Eve's Bradshaw lecture published in THE LANCET of Jan. 2nd—not that there is either gap in its exhaustive treatment of the subject or thought of under-rating the importance of diagnosis: the omission is plainly descriptive of the present status of that rather essential chapter. The ground is partly covered by the lecturer's remarks; an important fraction of it too by his suggestive diagram to guide the operator. I need not trespass at much length upon your space, as there is little I can add to previous statements, to which the references are subjoined.¹ The diagram

¹ 1898: The Diagnostic Uses of Percussion of the Vertebral Spines, with General Remarks on "Pleximetric" Bones and Viscera, THE LANCET, July 2nd, p. 23. 1899: On the Clinical Uses of Dorsal Percussion, &c., Brit. Med. Jour., vol. ii., p. 1167; On the Practical Aspects of Dorsal Percussion, and in Particular of the Percussion of the Spine, THE LANCET, July 29th, p. 261; et passim utroque. 1912: Cf. The Pre-operative Diagnosis of Appendicitis, &c., Brit. Med. Jour., vol. ii., p. 1741. 1914: Dorsal Examinations in Undiagnosed Abdominal Affections (with Special Reference to Pancreatitis and Appendicitis), ibid., vol. i., p. 453.

shows that the "vertebral" contact of the pancreas is almost as direct as the heart's "sternal" contact, whilst his statement confirms the experience of pathologists that swelling of the gland (sometimes much swelling) is the rule at the early stage. The sequel, *quâ* localisation, is largely governed by the decubitus, which is inevitably dorsal. Any fluid collections, whether cystic, hæmorrhagic, or purulent, inevitably seek the dorsal plane of the thoracic and of the lumbar spinal groove, in close approach to the dorsal surface. In that mechanical predicament, if we should have any use for evidence from physical signs, these might more probably be found in the safe exploration of the unconcerned dorsal field than in the danger zone of a tender and badly implicated abdomen, even though, as is sometimes reported, this should not be at first tumefied. To that statement there is nothing this letter can add, but to ask, Why should we strain to percuss at a pericardial effusion, happily seldom now fatal, nay, often apt to be a merely ephemeral rheumatic episode? Why percuss the liver for congestion, or cyst, or abscess if the deadly risks of pancreatitis and of its operations are not an urgent appeal for physical signs when available? Granted that British medicine may not be singular in that lofty indifference for the aid of physical examination (where can this be harmlessly applied except at the back?); that safety "in numbers" adds none to the patient. He is diagnosed—normally after death; not infrequently by the operation; rarely without it; but it would seem never by any examination for his dorsal physical signs, which keep faith with him to the grave.

I am, Sir, yours faithfully,

Upper Brook-street, W., Jan. 8th, 1915. WILLIAM EWART.

FROST-BITE.

To the Editor of THE LANCET.

SIR,—In Mr. A. W. Mayo-Robson's opportune article on Frost-bite in THE LANCET of Jan. 16th I note that he does not suggest any internal medication, and that for prevention he only urges care of the feet and legs in various ways. In view of the analogy, pointed out by himself, between mild frost-bite and chilblains, I would like to ask whether he or any reader of THE LANCET has tried calcium salts for prevention or cure of frost-bite. Since two days' medication with liquor calcii chloridi, π 60 in all, proves almost a specific for chilblains, the fact suggests the possibility of its usefulness, either for prophylaxis or treatment of the graver trouble. Moreover, calcium favours the coagulation of the blood if wounds are also incurred. The lactate would be more convenient under war conditions, and is reputed about as efficacious if fresh.

I am, Sir, yours faithfully,

FRANCES EDE, L.S.A.

Upper Berkeley-street, W., Jan. 18th, 1915.

THE TREATMENT OF COMPOUND GUN-SHOT FRACTURES OF LONG BONES.

To the Editor of THE LANCET.

SIR,—I was glad to see in THE LANCET of Jan. 16th that you have drawn attention to the doubts at present subsisting as to the best treatment of compound fractures of the long bones occurring on the field of battle and caused by bullets or shells. The matter to be decided is by no means easy, and we shall be, as you say, in a much better position to settle these questions at the end of the war, when all the statistics will be

available to which the war will give rise: but the matter is urgent, and the medical department of the army with its civil consulting surgeons will do well to give the matter immediate attention. My object, however, is not so much to insist on the importance of a consideration of the general treatment of these serious conditions, but to express my personal opinion as to the undesirability of ever plating or wiring any of these compound fractures. In civil practice, with all the facilities which are afforded by well-found hospitals, it has gradually come to be recognised by most surgeons that compound fractures should never be wired or plated. This opinion has been of only slow growth: for a long time it was felt that, as in a compound fracture the bone was already exposed, the surgeon was more readily justified in applying a plate immediately than in a simple fracture; but the results of this practice have shown that almost invariably compound fractures plated immediately do badly, and sooner or later the plate has to be removed. If such unsatisfactory results are almost certain in peace time, how can we expect better results when the operation has to be performed under greater difficulties, and in wounds probably much more septic than commonly found in civil practice, and when, further, a greater length of time has elapsed since the infliction of the injury? Moreover, the need to remove the plate later is only the least of the evils which may follow this method of treatment. It may lead to loss of the limb or even loss of life itself. I am writing with no personal knowledge of the work on the other side of the Channel, but I have heard that such attempts have been made, and I feel strongly that these heroic attempts to obtain perfect results may often lead to utter failure and loss of life or limb. Will not some of those who have seen wiring and plating of compound fractures in this war tell us definitely what results have been obtained? We shall all receive the information gratefully, and, provided care is taken to make the statistics correct, such information must prove of great benefit to us all.

I am, Sir, yours faithfully,

Jan. 18th, 1915.

F.R.C.S.

"TENDIMUS HUC OMNES."

To the Editor of THE LANCET.

SIR,—Under this heading there appeared in THE LANCET of Jan. 9th a letter from "A. M. D." criticising the prevalent impression that the loss of life among soldiers in war time greatly exceeds that which is experienced by non-combatants in the civil population. Your correspondent quotes the statement of Mr. E. B. Phelps, editor of the *American Underwriter*, who in an essay on loss of life in time of war expresses the opinion that the soldier's dangers in war time, ominous though they be, "are really but little greater than are the civilian's dangers of dying before he has had time to set aside the necessary nest-egg for his dependents." This essay contains a table showing the average mortality among combatants in the principal wars of the last half century, and in relation thereto the average mortality prevailing in the entire population of the American United States in the year 1914.

After carefully reading this essay I would join issue with "A. M. D." in the inference which, without reference to the context, he draws from Mr. Phelps's figures. In all statistical investigations absolute

comparability of the data involved is an indispensable condition, but in the present instance this precaution appears to have been neglected. It is familiar knowledge that the army consists exclusively of picked men, chosen from their fellows after strict medical examination, the health and physique of the troops after enlistment having been raised as far as practicable by careful training as well as by suitable feeding and exercise and by hygienic environment. We cannot compare the vitality of such troops with that of the general community, which includes large proportions of paupers, criminals, and other undesirable units, as well as of invalids and lunatics whose vitality and power of resistance to disease are manifestly inferior. The common impression, which attributes exceptional loss of life to the forces engaged in modern warfare, is the right impression. "A. M. D." concludes by offering helpful counsel to the host of probable sufferers from the present war in the event of its long continuance. He emphasises the duty incumbent on every man, whether civilian or combatant, to make provision for his family against the possibility of his premature demise. In a campaign of the present dimensions serious casualties are inevitable; but of the privation and distress thereby caused neither the incidence nor the intensity can possibly be foreseen. The desirability of securing the needful protection by means of life assurance is one of the significant lessons of the existing European conflict.

I am, Sir, yours faithfully,

Jan. 18th, 1915.

MEDICAL STATISTICIAN.

Obituary.

JOHN ROBINSON, L.R.C.P. EDIN., L.F.P. & S. GLASG.

THE recent death of Mr. John Robinson, of Runcorn, removes a distinct personality. He was greatly beloved and respected by those among whom he worked, and was typical of a class which would be styled old-fashioned and out of date by the present generation. Transfer Ian Maclaren's Dr. Maclure from the Highlands to Runcorn, and substitute the bargees of Mr. Jacobs for crofters, and the characters are identical. His manner of dress would have been eccentric if worn by another; winter and summer a short, thick, double-breasted pilot cloth coat, buttoned up to the chin, afforded no opportunity for the display of linen, for which John Robinson had no use. He wore no heels on his boots. His head was covered with a shaggy thick crop of iron-grey hair, and he was quite unconscious that his appearance differed from the man in the street.

Having served an apprenticeship before commencing his scientific studies, he believed that the practical experience and knowledge of human nature acquired during this period was of infinitely more value than the preliminary scientific studies of the medical student to-day. His day's work, year in and year out, was not interrupted by week-ends and holidays, for which he felt no need. Busy morning and evening with surgery work and plenty of it, with long rounds in the afternoons, Sundays and Bank Holidays not excepted, he was ready at any moment to tackle a case of difficult labour, to fight a pneumonia, or perform an operation for strangulated hernia, for his clients could not afford the luxury of

a specialist and his work had to be done with the assistance of a brother practitioner and the district nurse. Instead of the appointments of an up-to-date surgical theatre, his operation room was often the bedroom in a cottage.

A correspondent writes: "He once showed me a knife carried among other miscellanies in his pocket with which he had done 20 hernias. I asked him how many of the patients had died; he retorted not more than the average of a city hospital." His recreation was gardening, and he regularly read his Greek Testament. Thus his life work was done day in and day out, assisting arrivals and easing departures, practising his profession as a vocation, not as a means of gaining wealth. He used his power to help and his skill to advise those among whom his life work lay. John Robinson would be more than content with the respect and affectionate memories of his friends, workers in humble spheres, rather than that of the so-called upper classes.

HUGH WARNOCK, M.R.C.P. IREL., J.P.

Mr. Hugh Warnock, who died recently at his residence, Clogher, co. Tyrone, as the result of an attack of cerebral hæmorrhage, was a native of the Dromore district of co. Tyrone. For the past 38 years he practised in Clogher, where he was dispensary medical officer and medical officer of health. He was also medical attendant at the workhouse hospital for the past 13 years, and a magistrate for co. Tyrone. A skilful practitioner of medicine, a thorough man of business, and generally popular, Mr. Warnock will be very much missed.

ETHEL FRANCES LAMPORT, M.D. BRUX., L.S.A.

WE regret to learn that Dr. Ethel Frances Lamport died very suddenly on Dec. 27th, 1914, whilst driving to church. Miss Lamport entered the London Hospital as a probationer in 1884, and after completing her training was made sister of one of Sir Frederick Treves's wards, a post which she held for several years. After leaving the London Hospital Miss Lamport took the diploma of sanitary inspector and then decided to study medicine, entering the London (Royal Free Hospital) School of Medicine for Women in 1891. On qualifying Dr. Lamport at once returned to the East-end of London and began to practise in Bow, where she worked unremittingly for over 11 years for the improvement of the physical and social conditions of the women and children who came under her care. She also held the post of public vaccinator in Millwall (Isle of Dogs) for 10 years. When failing health made it impossible for Dr. Lamport to continue her arduous life of work amongst the sick poor, she retired to Well Manor, near Long Sutton, Hampshire, where she quickly endeared herself to her neighbours by her genial manner and the kindly interest she took in them. Dr. Lamport will long be remembered in Bow and Poplar for her unselfish devotion to the sick poor in those districts.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—

At a meeting of the Council of the College held on Jan. 14th the diploma of M.R.C.S. was conferred upon Mr. Stephen Abraham Liebson, of Guy's Hospital, and licences to practise dental surgery were granted to Mr. Percy Gordon Barlow Griffin, of Liverpool University, and Mr. Harry Austin Hutson, of Middlesex and National Dental Hospitals, all of whom have complied with the regulations.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE subscriptions to the Fund during the week ending Jan. 19th have been good. They include, it will be seen, a cheque received through Mr. A. A. Tindall for £137 10s., being money mainly collected by Dr. H. Macnaughton-Jones, and acknowledged in the *Medical Press and Circular*. Dr. Macnaughton-Jones's endeavours on behalf of the Fund have been strenuous throughout, while he was one of the first supporters of the movement.

The support of the Liverpool Medical Institution, which was promised from the beginning, has been substantial. The subscriptions already received amount to £300, and it is hoped that, in reply to the appeal of the institution, a sum of money may be raised "worthy of the history and position of Liverpool as a great medical centre." Subscriptions should be sent at an early date to Dr. T. R. Bradshaw, honorary treasurer, at the Liverpool Medical Institution. Professor Jacobs has accepted an invitation from the council of the institution to address the members of the medical profession on the circumstances and needs of his Belgian *confrères* at the Medical Institution on Thursday next, Jan. 28th, at 8.45 P.M. Cards of invitation to medical practitioners who are not members of the body will be supplied on application.

The local committee in Birmingham has already made a handsome collection, £148 having been sent this week to Dr. Des Vœux.

International interest in the Fund has been stirred up, and will not be lessened by the following episode. The Belgian Society of Medicine in London at a meeting held on Monday last passed a vote of sympathy with the Italian sufferers in the recent terrible earthquake, and requested that the money so far collected in Italy for the needs of Belgian doctors and pharmacists should be employed in alleviating the distress among the Italians.

The appeal by Professor Jacobs on behalf of the medical profession in Belgium is sympathetically discussed in *Ugeskrift for Læger* for December 17th. This Journal is the official organ of the Danish Medical Association, and it announces that the secretary of the association will receive contributions and forward them to the committee in England.

The subscriptions to the British Fund which have been received up to Tuesday evening last by Dr. Des Vœux, in addition to £3120 already acknowledged, are as follows:—

	£ s. d.		£ s. d.
Brussels Medical Graduates' Association (per Dr. Major Greenwood, Treasurer) ...	112 2 6	Mr. R. Carnelley Walsham ...	2 2 0
Dr. Oswald H. Isard ...	1 1 0	Mr. A. John ...	3 0 0
Reading Division, B.M.A. (per Dr. Gordon Lambert, Hon. Sec.)—		Mr. W. Austin Attree ...	0 5 0
Dr. F. W. Standfield ...	1 1 0	Birkenhead Medical Society (per Dr. G. V. Fletcher, Hon. Treas.) ...	15 15 0
Dr. T. H. Gandy ...	1 0 0	Mr. C. B. Thacker ...	1 1 0
Dr. Walter Dickson ...	2 2 0	Huddersfield and District Chemists' Association (per Mr. J. F. Russell, President) ...	1 12 6
Woolwich Division, B.M.A. (per Dr. B. W. Lacey, Hon. Sec.)—		The Misses Buchanan and Heywood ...	0 10 6
Dr. Sidney Davies ...	1 1 0	Mr. P. Bolton ...	1 1 0
Dr. James S. Robertson ...	1 1 0	Mr. Samuel Kay ...	10 0 0
The Misses Reynolds ...	1 1 0	Mr. F. J. Mackinlay ...	1 1 0
Morpeth Division, B.M.A. (per Dr. Frank Beaton, Hon. Sec.)—		Mr. Harold F. Mole ...	1 1 0
Dr. Hugh Dickie ...	2 2 0	Mr. J. H. Eldridge ...	1 0 0
Dr. A. Small ...	2 2 0	Shropshire and Mid-Wales Branch B.M.A. (per Dr. A. E. MacKenzie, Hon. Sec.)—	
Dr. Frank Beaton ...	1 1 0	third donation—	
Dr. M. Maclean ...	0 10 6	Dr. T. D. Kirk ...	1 1 0
Dr. H. S. Brown ...	0 10 6	Dr. W. H. Lewis ...	1 1 0
Dr. P. Henderson ...	1 0 0	Mr. W. L. Cunningham ...	1 1 0
		Mr. Percy G. Hicks ...	2 2 0

	£ s. d.		£ s. d.
Southgate Ward, North Middlesex Division B.M.A. (per Dr. M. Stewart Smith, Hon. Sec.)—		Birmingham Pharmaceutical Association (per Mr. F. Smith, Hon. Sec.)—	
Dr. Gillfillan ...	1 1 0	Messrs. Cuxson, Gerrard and Co. ...	5 5 0
Dr. R. S. Dickson ...	0 10 6	Mr. E. Corfield ...	5 0 0
Dr. A. S. Ransome ...	1 1 0	Mr. H. Critchlow ...	5 0 0
Dr. W. N. Barker ...	0 10 6	Mr. E. W. Mann ...	5 0 0
Dr. D. Fairweather ...	0 10 6	Mr. Alfred Southall ...	5 0 0
Dr. A. Armstrong ...	1 1 0	Mr. F. Smith ...	2 2 0
Dr. A. D. Macnair ...	1 1 0	Mr. W. Izon ...	3 3 0
Dr. R. T. Vivian ...	1 1 0	Messrs. J. and E. Sturge, Ltd. ...	2 2 0
Dr. H. S. Vivian ...	0 10 6	Mr. H. Buckingham ...	1 1 0
Lieutenant C. St. A. Vivian, R.A.M.C. ...	0 10 6	Mr. J. W. Atkinson ...	1 1 0
Mrs. Westlake, M.B. ...	0 5 0	Mr. G. H. Buckley ...	1 1 0
Dr. J. F. S. Weir ...	0 10 6	Mr. J. H. Griffin ...	1 1 0
Dr. A. Wells ...	0 10 6	Mr. F. H. Alcock ...	0 10 6
Dr. Goble ...	0 10 6	Mr. R. Howard ...	0 5 0
Dr. Jamieson ...	0 10 0	Mr. Dunscombe ...	0 2 6
Dr. H. Sewell Sims ...	0 10 6	Messrs. Philip Harris and Co. ...	10 10 0
Dr. M. Stewart Smith ...	0 10 6	Mr. Jeffrey Poole ...	5 0 0
Dr. S. Richards ...	1 0 0	Mr. J. Wakefield ...	5 0 0
Dr. L. Grant ...	1 1 0	Mr. S. J. Gittos ...	2 2 0
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The third list of subscribers in Ireland, published in THE LANCET last week, brought the amount of the Irish Fund up to £816.

LIVERPOOL MEDICAL INSTITUTION.

The following is a list of subscriptions received down to Jan. 16th, in response to an appeal made by the Liverpool Medical Institution:—

£	s.	d.	Dr. J. G. Corkhill	£	s.	d.
Dr. T. R. Bradshaw	5	5	0	Dr. J. B. Edis	1	1
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Dr. Hill Abram	5	5	0	Dr. H. T. Nixon	1	1
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Dr. George Johnston	5	0	0	Dr. G. G. Goodwin	1	1
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Dr. C. S. Jago (Lathford)	2	2	0	Dr. Buxton	1	1
Dr. Maccall (Southport)	2	2	0	Dr. F. L. Angior	1	1
Dr. E. M. Stockdale	2	2	0	Dr. T. M. Angior	1	1
Dr. Hugh A. Clarke	2	2	0	Dr. Irwin Sellers (Preston)	1	1
Dr. M. G. Garry	2	2	0	Dr. T. E. Jones	1	1
Dr. Winstanley (Bryn)	2	2	0	Dr. A. Craigmile	1	1
Dr. Butt (Chester)	2	2	0	Dr. A. W. German	1	1
Dr. John Bark	2	2	0	Dr. W. R. J. Garson	1	1
Dr. Walter T. Clegg	2	2	0	Dr. Peter Davidson	1	1
Dr. T. R. Armour	2	2	0	Dr. Gerald Wallace	1	1
Dr. McCann	2	2	0	Dr. Charles Sharp	1	1
Dr. Lissant Cox (Preston)	2	2	0	Dr. Frank H. Barendt	1	1
Dr. Thomas Guthrie	2	2	0	Dr. M. T. Stack	1	1
Mr. Robert Kelly	2	2	0	Dr. A. S. Parkinson	1	1
Professor Ernest Glynn	2	2	0	Dr. J. A. Howard	1	1
Dr. T. F. Pugh	2	2	0	Dr. R. F. Carse	1	1
Dr. Ll. Morgan	2	2	0	Dr. S. H. House	1	1
Dr. Glynn Whittle	1	1	0	Dr. B. Sumner	1	0
Dr. Owen Bowen	1	1	0	Dr. E. Hughes	0	10
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Dr. H. R. Hurter	1	1	0	Dr. W. C. Carter (Southport)	0	10
Dr. N. Percy Marsh	1	1	0	Dr. H. J. Knox	0	10
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Dr. A. J. McConnell	1	1	0	Dr. J. Leggate	0	10
Dr. Rawsthorne	1	1	0	Dr. G. Y. Yardumian	0	10
Dr. Adam Moss	1	1	0	W. Jones	0	10

Medical men and pharmacists and other kind supporters of the Fund in the Liverpool area should send their subscriptions to Dr. T. R. Bradshaw, at the Liverpool Medical Institute.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges with thanks the receipt of surgical instruments kindly contributed by the following gentlemen since the publication of the last list:—

Dr. F. R. B. Atkinson, Warwick-street, London, S.W.; Mr. John W. Orviss, Jersey; Dr. Blair, Jedburgh; Dr. Selwyn Edwards, West Bromwich; Dr. Basil Housman, Tardebigge, near Bromsgrove; Dr. R. Anderson, Erdington, Birmingham; Dr. S. Bodger, Studley, Warwickshire; Dr. E. Cautley, Park-street, Park-lane, London, W.; Dr. W. H. Lewis, Llansantffraid, Mon.

Subscriptions to the Fund should be made payable to the Belgian Doctors' and Pharmacists Relief Fund, crossed Lloyds Bank, Limited, and sent to Dr. H. A. Des Vœux, 14, Buckingham-gate, London, S.W.

The War.

THE PRINCESS CHRISTIAN MOTOR LABORATORY.

THROUGH the generosity of an anonymous donor a fully equipped motor bacteriological laboratory has been placed this week at the disposal of the War Office for service at the front. The car, which will be known as the "Princess Christian Motor Laboratory," consists of a large van-shaped body divided into two compartments, with driver's seat in front, on a 20-30 h.p. Clement-Talbot chassis. The outside body work of the coach was built by Messrs. Peters and Son, of Acton, and the internal construction, fittings, and scientific equipment have been devised and carried out by Messrs. Baird and Tatlock, Limited, under the supervision of Mr. Douglas Baird.

The main laboratory—6 ft. 6 in. long by 6 ft. wide—is entered through a door at the back, and is fully equipped with glass-covered bench top, sink, centrifuge, balances, microscope, bookshelf, water cistern, and so on, with shelves, drawers, racks, and cupboards containing reagents, microscopical stains, and all the necessary apparatus for bacteriological and cytological work. The smaller compartment—2 ft. 10 in. in depth by 6 ft. wide—is separated from the laboratory by sliding doors, and contains two incubators, hot air and steam sterilisers, still and condenser, autoclave and water bath, together with a fume cupboard with electric fan beneath to drive out impure air and gases. The necessary heat for these appliances is provided by Primus burners and intensive oil lamps, while a petrol incandescent lamp supplies enough heat to warm the laboratory in winter. Electric current for general and microscopical illumination is obtained by a dynamo belt-driven from the engine. The height of the laboratory at the centre is 6 ft. 6 in., and there is enough floor space in the middle of it to give impromptu sleeping accommodation for the bacteriologist if need arises. The driver's platform can be closed in by screens, and a trap lets down above the seat, thus furnishing two bunks one above the other in which the driver and laboratory assistant can sleep. The total weight of the car, with driver, is 3 tons 8 cwt., and the cost has been upwards of £2000.

The manner in which this travelling clinical laboratory has been designed and fitted up, so as to give the fullest working outfit in the smallest space consistent with freedom of movement, is deserving of high praise. Much ingenuity has been

FIG. 1.



General view of field motor laboratory and side-car.

FIG. 2.



Interior view of field motor laboratory.

spent in providing compact storage space for breakable glass apparatus and delicate instruments without risk of damage from jolts and bumps when the car is on rough roads. The investigator indeed has everything he is likely to want for ordinary purposes almost immediately under his hands. Three previous laboratory cars, which have been equipped by Messrs. Baird and Tatlock for the War Office during the progress of the war, are already in use with the Expeditionary Force, and various improvements in design and finish, based on this experience, have been embodied in the Princess Christian Motor Laboratory.

In association with the laboratory car is a motor cycle with side-car attachment,

which provides a mobile means of fetching pathological fluids and specimens from points nearer the firing line than the car itself would ordinarily reach. Captain A. C. H. Gray, assistant professor of pathology at the Royal Army Medical College, is in charge of the laboratory, which has already left for an overseas base. On Monday last Captain Gray was received by Princess Christian at Schomberg House, and the laboratory car was inspected by Princess Victoria of Schleswig-Holstein. Our illustrations give an outside view of the laboratory car and side-car, and an interior view of the laboratory taken from the back of the car.

GERMANY AND AUSTRIA IN WAR TIME.

A medical correspondent, writing from Switzerland on Jan. 15th, sends us the following notes of scientific and professional affairs in Germany and Austria, gleaned from the medical press of those countries since the New Year.

It might be of interest to try to form some idea of the way in which five months of war have affected the German medical world. The medical papers all appear regularly and have their usual external appearance, although slightly decreased in size, especially in the advertisement columns. Most have special military supplements, but the text of the journals is by no means exclusively military, and turning to the pages of the Munich journal one reads of complement reactions and of tuberculin, followed by a case of suture of the right ventricle from a sabre cut during a quarrel, an illustration of the seamy side of militarism. The British journals naturally figure no longer in the summaries of current literature, although a Vienna paper continues to use American sources freely as well as the journal of the Royal Army Medical Corps. It is unfortunate that, although prominence was given to the complaint of the Hamburg doctors against the conditions supposed to prevail among the interned Germans in England, no notice has been taken of the effective replies to this published in *THE LANCET* and *British Medical Journal*. The medical societies continue to meet at the principal university centres, while the character of the communications is largely dependent on proximity to the fighting line. A reunion at Lille (which is explained by the papers to be in France!) naturally discusses bullet and other wounds. Explosive bullets still figure *ad nauseam* and it is refreshing to meet the following paragraph: "The doctor can often help to set the soldier's mind at rest by correcting his frequently erroneous opinion that he has been wounded by an explosive bullet. To be wounded is hard enough, but the feeling of being the victim of the enemy's baseness is harder still, and when not justified by facts should be removed, if possible, in the interest of the wounded man himself." At the universities nearly the usual number of students have been enrolled, but a large proportion of these are away on war leave. Here, again, the towns nearest the front are most depleted. At Strasburg, for instance, 535 out of 1155 students are at the front; at Bonn 1117 out of 4518. The new university of Frankfurt-on-Main, which was inaugurated by an Order in Council signed by the Kaiser on June 10th, 1914, was opened without ceremony in October, and although ten of the new professors were at once called to the front, the well-known names of Quincke and v. Noorden appear as professors, and 80 medical students were enrolled. Amid the shout of arms time has been found to celebrate the 400th birthday of Vesalius, the founder of anatomy, with an exhibition at Berlin, which might indeed now have been conducted at his birthplace, Brussels.

The health of the German army continues to be reported as excellent, but certain grave risks are not far distant. Typhus has broken out among the Russian prisoners at the camp at Cottbus with several hundred cases, prevented so far by rigid isolation from spreading outside the camp, but Professor Jochmann, of Berlin, fell a victim to the disease whilst conducting a Government inspection. On the Eastern frontier the soldiers are recommended to carry 30 to 50 grammes of naphthalin to keep off body parasites in order to avoid possible infection, but it is doubtful whether the supply of this drug is sufficient to make the suggestion practicable. In the last report there were 166 cases of cholera among the Russian prisoners in Germany, but only 1 Englishman, 10 German soldiers, and 2 German civilians have been infected. In Austria the disease appears to be less prevalent, although during three months in a single Vienna hospital 2800 stool examinations were made, and vibrios were found in 250 persons. Attention is called to the great danger of cholera carriers—i.e., cases coming from infected areas with only slight symptoms. In general the health of the prisoners is also reported to be good; but bitter complaint is made of the difficulty of sparing food for the number of these, which is stated to be 600,000, and attention is called to the urgent need of sending the unfit ones home. The food-supply in general continues to give rise to anxious thought. A medical writer discusses at length the practical aspects of the question, remarking what a large part the food-supply

plays in the effectiveness of the army, regretting that the potato harvest was not so good as was expected, and emphasising the great advantage that the army is on enemy's soil whilst the family at home eats proportionally less. He advocates the working out of the experience of both the productive and hygienic side of the nation's supply and the enforcing its observance by law. In Berlin it has so far been impossible to persuade either the bakers to bake or the population to eat, the prescribed bread containing 10 per cent. of rye flour, and the prospect of a shortage in wheat-supply is increasingly imminent. The lack of drugs in Germany has apparently not been severely felt so far, although morphia and other opium alkaloids have doubtless been replaced where possible by synthetic remedies in ordinary practice, morphia itself being left largely for the relief of the wounded. Stress is laid on lack of drugs in Russia, where there is said to be no manufacture of pure chloroform for anæsthetic purposes, nor of iodine and its derivatives; but an expedition is stated to have been sent to the White Sea to procure a stock of iodine from the seaweed there. Another medical writer states with apparent seriousness: "We must free ourselves from our exaggerated German reserve, solicitude, and conscientiousness even bordering on pedantry" in order to ensure rightful demands. The intellectual ability of the German doctor is further illustrated by a serious discussion of high medico-legal authorities as to the ownership of bullets extracted by operation from wounded men. On the one side it is argued that after shooting a bullet the enemy surrenders his property in it without conferring it upon his opponent, in whose body it therefore remains as only lost, as it is not an integral part of his tissue. But in no case can the doctor take possession of it without permission. Another grave authority considers that the bullet still remains the property of the hostile side.

THE BRITISH RED CROSS SOCIETY.—In its summary of work for the week ending Jan. 16th the British Red Cross Society states that during the past week there have been despatched to Boulogne 6 ambulances, 1 motor cyclist, and 1 lorry; to Dunkirk 4 ambulances and 2 touring cars; to Calais 1 lorry; and to various places in England 12 ambulances. The number of auxiliary home hospitals accepted by the War Office up to Jan. 16th is 686, containing beds for 19,159, including 377 beds accepted during the past week. At present at Netley Hospital there are 145 British, 8 foreign invalids, 6 Belgians, and 240 Indians in hospital. One death has occurred among the Indians from pneumonia. The new hospital for nurses is being erected, and the buildings of the Irish Hospital are progressing and will be brought into use at the end of the month. 1490 cases of stores were sent abroad during the week, of which 1259 were despatched to Serbia and Montenegro. Fifty hospitals in this country were supplied with 252 cases of stores and garments. The number of patients who have been treated in the British Hospital during the eight weeks it has been opened now total 873—namely, British, 50 officers and 816 of other ranks; and seven German prisoners. Two orderlies left for Serbia on the 16th, and one clerk for Boulogne, also three cooks for Boulogne. During the week 24 nurses were posted for home service and one despatched for foreign service.

VACANCIES FOR MEDICAL OFFICERS.—Major C. M. Fegen, R.A.M.C. (T.F.), divisional sanitary officer of Reigate, asks us to state that medical officers are needed in his command, both for field ambulances and for regimental work. Applications for commissions should be made to Captain Cave, Officer Commanding Depot (Medical Units), Duke of York's Headquarters, Chelsea, London, S.W.—In our Service column this week an announcement is made that the War Office has several vacancies for temporary lieutenants in the Royal Army Medical Corps.

Sir William Osler, according to a telegram from Montreal, has offered his services to the McGill University base hospital, which is now being organised for duty at the front.

DENTAL AID FOR SOLDIERS.—The trustees of the late Sir William Dunn have made a grant of £1000 to Guy's Hospital, to be applied for the treatment of the teeth of soldiers now serving with the British forces and of men

desirous of enlisting as soon as their teeth are in order. The Soldiers' Dental Aid Fund, with offices at 36, Leicester-square, London, W.C., has been established for a similar purpose, and has the support of the Presidents of the Royal Dental and National Dental Hospitals.

4TH LONDON (CITY OF LONDON) GENERAL HOSPITAL.—This Territorial General Hospital, unlike its fellows in the London District, occupies buildings expressly designed and constructed for use as a hospital. The original plan, before war broke out, was that the site of the hospital on mobilisation should be at St. Paul's School, but this idea was abandoned early in August in favour of transforming the greater part of the new King's College Hospital at Denmark Hill into a military hospital. The whole institution in its double capacity as a military and civil hospital has now been in full working order since within a week of the order for mobilisation, the military side of it being under the able direction of Lieutenant-Colonel Nestor Tirard, the Commandant. Although the entire hospital building, as designed, has not yet been completed, the hospital authorities have been able to place at the disposal of the War Office sufficient accommodation to provide a fully equipped military hospital of 520 beds, and to these have been added 114 additional beds as the need for expansion arose. A very large number of military patients are also received under the administrative control of the 4th London General Hospital authorities in five other London hospitals in the east, the north, and the west. At King's College Hospital the casualty block and six wards on the first floor remain for civilian use and for the medical school. The rest of the buildings are military, and the full use of the whole equipment of the hospital is at the disposal of the military medical authorities, the War Office paying for the upkeep of those portions of the hospital which have been handed over to them. The staff of the 4th London General Hospital is drawn from the medical and surgical staffs of King's College Hospital, St. George's Hospital, Charing Cross Hospital, and Westminster Hospital. Colonel Tirard is assisted in his administrative duties by Major G. N. Biggs and the Quartermaster, Captain J. Boxall. Of the *à la suite* staff of medical officers available for service on mobilisation the following have already been called up for duty: Lieutenant-Colonels Norman Dalton and Stanley Boyd; Majors A. H. Tubby, F. W. Mott, W. G. Spencer, A. Carless, W. Aldren Turner, and J. Galloway; Captains A. M. Gossage, H. F. Waterhouse, Cyril Ogle, Arthur Latham, William Turner, William Hunter, W. C. Bosanquet, A. H. Evans, J. S. Collier, H. S. Pendlebury, J. Purves Stewart, E. R. Carling, T. Crisp English, R. O. Sibley, W. D'Este Emery, and R. Knox. The principal wards of King's College Hospital, which are built on the pavilion system, are admirably suited for the use of military patients, and the modern construction and equipment of the new hospital are of the greatest possible advantage to all concerned.

BRIGHTON MILITARY HOSPITALS: A TRANSPORT RECORD.—A local correspondent writes: "Despite the short notice that has on more than one occasion been given of the arrival of wounded at Brighton, the medical transport arrangements have been so well carried out that the speed with which the various Red Cross trains have been cleared has often been commented upon. These arrangements have all been carefully planned and carried out by Major W. H. Brailey, the medical transport officer, who was congratulated by the King on the occasion of his recent visit with the Queen. His Majesty told Major Brailey that Brighton holds the record for the whole country, having secured it by transporting the first batch of wounded Indians, 344 in number, from the train to the hospitals in just over an hour. The performance was the more remarkable from the fact that the Indians carry with them much more baggage than the British. Since the date of the King's visit a trainload of British wounded has arrived, and 99 cases, including 40 stretcher cases, were removed and rehoused in various parts of Brighton and Hove in 40 minutes, the Army Service Corps ambulances being supplemented by several of the Royal Army Medical Corps and that of the Brighton Borough Police and private motor cars. And a lot more work is in store for the medical transport workers at Brighton. The workhouse and infirmary buildings, which have been taken over by the War Office, were

evacuated of their usual inmates on Jan. 16th, when the keys were handed over to the Government representatives, and active preparations are being made for the reception of wounded Indian soldiers, elaborate alterations being necessary in both the sanitary and cooking arrangements. The institution is now officially known as Kitchener's Hospital, and on Jan. 12th there arrived from Bombay the personnel of five field hospitals and two hospital ships, comprising 25 English officers, 26 Indian officers, 41 warrant officers (Indians), and 544 men (Indian soldiers), the latter including attendants, cooks, &c., for both Mohammedan and Hindu. The occupation of this hospital by wounded Indians is not expected for some time."

BRITISH HOSPITALS FOR THE BALKANS.—The British Red Cross is sending out two hospital units, one to Serbia and one to Montenegro. The unit for Montenegro consists of Dr. F. G. Clemow, C.M.G., in charge, with Dr. Virtue Tebbs and Dr. Burnham as surgeons, two trained nurses, two Voluntary Aid Detachment ladies, and four male orderlies. The unit will proceed first to Malta, whence it will make every endeavour to reach Montenegro. A large quantity of medical stores is being taken, and, owing to the conditions prevailing in Montenegro, the unit is compelled to carry with it food, &c., for six months, so as to be independent of local supplies. A hospital unit for Serbia is also leaving London under the superintendence of Mr. James Berry, senior surgeon to the Royal Free Hospital. The unit has the direct authority of the Serbian Government, and the British Admiralty has consented to transport it free of cost. A full medical and surgical outfit will be carried, while clothing and other comforts for the people of Serbia will also be taken, so far as funds permit. The medical staff consists of Mr. James Berry, senior surgeon and medical superintendent; Mr. Laurence E. Panting, surgeon; Mrs. F. May Dickinson Berry, physician and anaesthetist; Dr. Ernest V. Williams, radiographer; Dr. Dorothy Chick, house surgeon; and Miss K. M. Parkinson, dresser; together with 8 nurses under Miss Irvine-Robertson, 5 lady orderlies, 4 orderlies, and a cook.

THE FRENCH AUTOMOBILE AMBULANCE NO. 1.—Our Paris Correspondent writes that on Jan. 13th Dr. Hallopeau laid before the Société de Chirurgie statistics of the results obtained with automobile ambulance No. 1, which was supervised by himself in conjunction with a surgical colleague of the Paris hospitals whose idea it was, and who acted as *médecin-chef* of this new sanitary formation. The object was to provide a surgical establishment in which operations could be done with as much certainty of surgical technique as in the most modern hospitals, and as near the firing line as possible. This was accomplished in the most scientific yet simple manner imaginable. The entire formation consists of three light wagons and an engine. This last contains the most important part of the ambulance, the steam generator, which assures at any hour of the day or night an adequate supply of perfectly sterilised water, soap, brushes, instruments, and dressings. The same steam apparatus heats the operating tent to the desired temperature. With an outside temperature of -21° F. a constant inside temperature of 75° has been maintained. The traction engine can make its way anywhere, so that the sanitary formation can be established at the chosen spot, and it can also place itself under cover with all possible rapidity. The wagons contain the complete material necessary for a hospital of 120 beds for operation cases, established at some fixed spot, such as a chateau, church, or farmhouse, connected by an awning passage with the operating tent; also the dispensary, reserve of dressings, the kitchen, and all the other accessory services. The pitching of such an ambulance, including the hospital and operating tent, takes only a few hours, and it can be struck with equal rapidity. The establishment contains also six light motor vehicles, heated to 75° and capable of containing four stretchers for the wounded or operation cases. These motor cars link up the ambulance proper with neighbouring dressing stations, which send to it only carefully selected cases of those seriously wounded. To them also is reserved the rôle of evacuating the operation cases should a retreat render it necessary. Ninety-two persons were operated on by this ambulance during its recent campaign without an amputation or a case of tetanus. One patient was brought in with gaseous gangrene and was cured. Six perforating wounds of

the abdomen have been operated upon, of which three were cured. The surgeons have operated in it for ten hours in succession.

SOLDIERS' DREAMS.—A correspondent in charge of an ambulance on the Continent, when his time was not fully occupied by surgical emergencies, has had the curiosity to inquire into the psychological consequences of the emotions inseparable from active fighting as shown in dreams and other subconscious manifestations. Neurotic subjects, as one would expect, he says, react in a most striking fashion to the shock of explosions in their immediate vicinity. Some develop a tendency to somnambulism and are met wandering about the premises with terror and anxiety depicted on their faces in anxious search of their regiments. Short of somnambulism the dread of losing contact with their fellows seems to be felt with extreme frequency, and horror of isolation constitutes the commonest nightmare of men in the first fighting line. They dream that they are wandering through endless trenches as complicated as an artificial maze, or are picking their way through lonesome forests whence all but they have fled. The slightest noise during sleep calls up visions of exploding shells or the tramp of armed men, throwing them into a frenzy of shouting terror, to the indignation of their resting fellows. Oddly enough, these men are as brave as the rest in face of real danger. Another common night terror is the dream of a sudden call to arms and the inability to find some indispensable article of attire or combat, a conception productive of intense mental agony. Live shells naturally occupy a large share of subconscious attention, and an exasperating nightmare is the discovery in one's bed of a shell ready and willing to burst, associated with the usual nightmare incapacity to execute the necessary movements to get rid of it. Several men have had dreams centring round the inability to withdraw the bayonet from the enemy's body when urgently required for self-defence. Numerous instances of "traumatic hysteria" are met with in which men, suddenly roused from deep sleep by explosions, develop the characteristic paralyses and disturbances of sensation. In one case there was marked limitation of the field of vision and inability to connect letters into words; the man could read the letters, but could not pronounce the word when spelled nor write the word when pronounced. Insomnia and more or less troublesome restlessness are also common consequences of the strain on the nervous system of actual warfare.

ROYAL COLLEGE OF SURGEONS IN IRELAND AND THE WAR.—The President, Vice-President, and Council of the Royal College of Surgeons in Ireland have decided to place in the College a permanent record of the names of all the students, Licentiates, and Fellows of the College who are at present serving with His Majesty's Navy and Expeditionary Forces, and further to erect a suitable memorial to all such as fall in the war. Relatives and friends are invited to communicate the names of such students, Licentiates, and Fellows to the Registrar of the College, Dublin.

IRISH MEDICAL MEN AND THE TERRITORIAL FORCES.—Dr. J. C. McWalter, governor of the Apothecaries' Hall of Ireland, writes: "May I appeal through your pages to the army authorities to give Irish doctors the same facilities for serving their country as are enjoyed by our British brethren? In Great Britain a very large proportion of practitioners belong to the Territorial Forces. It may not be possible for them to go to the front, but they are doing active service, and if an emergency occurred would doubtless be ready to go where wanted. In Ireland we have no Territorial Forces, and though a very large number of our younger men have volunteered and a great many are in the Officers' Training Corps, there appears to be no opportunity for medical men above the age of 45 of joining any branch of the Army Medical Service except in a few isolated instances."

BRITISH PRISONERS IN GERMANY.—A correspondent in Switzerland writes:—"An interesting report on the condition of the French and British prisoners in the concentration camps of Germany has just been presented to the International Committee of the Red Cross Society at Geneva by Dr. Ferrière and M. Gustave Ador. The two Swiss delegates spent a considerable time in

Germany, where the authorities apparently did their best to make their task of investigation both pleasant and easy. The report lays emphasis on the fact that the enforced confinement does not seem to be having any ill-effects upon the health of the prisoners. The moral sufferings which the régime of complete isolation occasions the officers are, it is pointed out, considerable. The inaction which now characterises their lives—as contrasted with the strenuous vivid life on the fields of battle—also weighs heavily upon them. They are allowed no newspapers, very few books, limited and very colourless correspondence. From the point of view of sanitation and organisation it is stated the great concentration camps in the neighbourhood of Berlin are entirely admirable. The wooden dwelling houses are well built, are provided with double walls, and are comfortably heated. Long corridors suitable for exercise divide the rows of dwellings, and in the centre of the camps a canteen, where cigars, warm clothing, and food and delicacies were sold, was generally found. The delegates regret that unfounded reports, based probably upon individual cases which had no general significance, in regard to the concentration camps in Germany have been given publicity. The material conditions of captivity, their experience indicated, are satisfactory. The ordinary diet of the prisoners is that of the German soldiers."

Count Lalaing, the Belgian Minister in London, has sent a letter to the Vice-Chancellor of the University of Cambridge expressing grateful appreciation to the Senate of the University for their generous hospitality to professors from the Universities of Louvain, Liège, and Ghent, and to a number of students unfitted for military service with the Belgian army.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the quarterly examination in Practical Pharmacy held on Jan. 14th the following candidates were approved:—

Willoughby Agar, B.A. Oxon., Oxford and Birmingham Universities; Philip Ardern Ashcroft, Manchester University; Charles Milwyn Burrell, B.A. Oxon., Oxford University and London Hospital; William John Dearden, Manchester University; Herman Gerald Dresing, Guy's Hospital; Donald Charles Farquharson, St. Mary's Hospital; William Vincent Gabe, Middlesex Hospital and private study; Sures Chandra Ghose, St. Mary's Hospital; Geoffrey Dowson Gripper, Guy's Hospital; Denis Paul Guilfoyle, St. Bartholomew's Hospital; Carl Gustave Waldemar Hahr, St. George's Hospital; Russell Walbancke Hodgson-Jones, Manchester University; Lancelot Horsley, Guy's Hospital; Harold Leslie Hughes, St. George's Hospital; John Stuart Lewis, St. Mary's Hospital; Eric Spanton Mawe, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; George Stanley Mitchell, King's College and Westminster Hospital; Ismail Mortada, B.A. Cantab., Cambridge University and University College Hospital; Charles Cyril Okell, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Hoel Parry Price, Guy's Hospital; Thomas Lord Price, B.A. Oxon., Oxford University and St. Thomas's Hospital; Edmund Douglas Richardson, Charing Cross Hospital; Edgar Stanley Rowbotham, Charing Cross Hospital and King's College; Everard William Lewer Sharp, London Hospital; Edith Grace Sherwood, Royal Free Hospital; Francis Henry Smith, M.A. Cantab., L.D.S. Eng., Cambridge University and St. George's Hospital, and Myles Denison Boswell Tonks, London Hospital.

EAST SUSSEX INSURANCE COMMITTEE.—At a meeting of the East Sussex Insurance Committee protest was raised by medical men present at the delay taking place in the making of payments to practitioners on the panel, final credits for 1913, as well as provisional credits for 1914, being still unsettled. The Commissioners had issued a circular to medical men intimating that the Insurance Committee would make no further advance until the practitioner in question had furnished the required records, and the making of proper returns had been recently rendered in many cases impossible owing to the war and the loss of cards in transmission. A resolution passed by the Medical Benefit Subcommittee provided for the drawing and signing of cheques by the Committee after examination and approval of the amounts payable, but recognised the intervention of the Commissioners by providing that his cheque should not be sent to a practitioner until the Commissioners notified the Committee that they had received the lower halves of his record cards from him.

The resolution also provided for the sending of a circular to practitioners explaining and deprecating the delay thus arising in remitting payments, and urging that an intimation of the regret of the Committee at their inability to make prompt payment should be conveyed to the Commissioners. The delay was denounced in strong terms in the course of the discussion and in connexion with the adoption of the minutes, and reference was also made to another matter in which the medical profession was hardly treated. This arose out of a letter from the Commissioners stating that the concessions made to druggists with regard to the increased cost of drugs through the war were not applicable to practitioners on the panel who had arranged to dispense medicines to their insured patients on a capitation basis.

MEDICAL MAGISTRATE.—Dr. Frederick Wolverson has been appointed a justice of the peace for the county of Stafford.

ANTHRAX IN ABERDEEN.—A case of anthrax has occurred in Aberdeen, the victim being a woman who was engaged in mending bone-meal bags. She returned from her work an hour earlier than usual on Dec. 3rd last, complaining of feeling unwell. The glands of her neck were very much swollen. On the next day she went to her work, but returned much worse. A medical man was sent for, and her condition gradually became worse, death supervening on Dec. 8th. During the inquiry under the Fatal Accidents Inquiry Act, the medical practitioner who attended her said that her mouth was in a septic condition and it was possible the germs might have found entrance by the septic gums, or the disease might have been contracted through rubbing the bone dust into a scratch or broken pimple. The jury found that the woman had died from anthrax contracted accidentally.

DONATIONS AND BEQUESTS.—Subject to the life interest of his wife, the late Mr. Thomas S. D. Wallace, of Brighton, left by will £1000 each to the London Hospital, Guy's Hospital, the Homœopathic Hospital, the British Home for Incurables at Streatham, and the Cancer Hospital at Fulham.—The Royal Dental Hospital, Leicester-square, has received a donation of £100 from the Worshipful Company of Goldsmiths.—By the will of the late Mr. H. Mitchell, of Birmingham, the testator left £8700 upon trust to apply the income for the benefit of the Birmingham Athletic Club, for the provision of annual lectures on health and hygiene during the 21 years following his decease, and subject thereto this sum is to be divided as to one-third to the Queen's Hospital, Birmingham, one-fourth to the Birmingham and Midland Eye Hospital, one-fourth to the Birmingham and Midland Skin and Urinary Hospital, and one-sixth to the Birmingham Athletic Institution.—Among recent donations to the fund for the extension of the London (Royal Free Hospital) School of Medicine for Women are £262 10s. from the Mercers' Company and £50 from the Goldsmiths' Company.

INFECTIOUS DISEASE IN BELFAST.—At the January monthly meeting of the city corporation of Belfast a long discussion took place on the prevalence of zymotic disease in Belfast, with particular reference to the great scarlet fever epidemic. As a justification of the large expenditure on public health, the chairman of the Public Health Committee said that the death-rate during the past 20 years had fallen from 23·3 to 18·2 in 1913, though in 1914 it was 18·7. During 1914 there were 1090 deaths from zymotic disease, a rate of 2·7 per 1000; of these 197 were due to measles, 203 to whooping-cough, and 455 to diarrhoea. In 1914 there were 815 deaths from pulmonary tuberculosis, while in 1913 there were 844, the total death-rate from this disease being 2·0, while in 1913 it was 2·1, which was a slight change for the better. In the very full discussion which followed attention was drawn to the want of personal interest taken in Purdysburn Municipal Fever Hospital by the members of the Public Health Committee, to the large expense of that institution, with alleged inadequate results to the public health, to the large number of its staff and the absence of a resident medical superintendent, to the existence of return cases, and to the presence of cross-infection. In the course of debate it was alleged that the medical

officer of health did not get a free hand or insist on his advice being acted upon. The necessity of weekly cleansing of every national school in the city was considered. A medical councillor having pointed out that there was a diminution in the number of scarlet fever cases even before the closing of the schools, added that it would be interesting to find how far closing of the schools contributed to the diminution of the scarlet fever epidemic. It is a healthy fact to find the public health of Belfast being discussed by its civic fathers; it means that the public of Belfast are showing clearly that they are far from being satisfied with the present condition of the health of the city.

MEDICAL BARRISTER.—Dr. W. E. St. Lawrence Finny, J.P., who is a member of the Inner Temple, has passed the Bar Final Examination, qualifying for admission as a barrister-at-law.

LEICESTER ROYAL INFIRMARY.—At a quarterly meeting of the governors and subscribers held on Wednesday last it was decided to build and equip a new and complete pathological and clinical laboratory and post-mortem department at an approximate cost of £3500.

ROYAL METEOROLOGICAL SOCIETY.—The annual general meeting of this society was held on Wednesday evening last at the Surveyors' Institution, Great George-street, Westminster, when Captain H. G. Lyons, F.R.S., was elected president and Mr. F. Campbell Bayard and Commander W. F. Caborne, C.B., secretaries for the ensuing year. The new members of council are Mr. J. S. Dines, Mr. A. P. Jenkin, and Sir J. W. Moore, M.D.

HUNTERIAN SOCIETY.—On Wednesday, Jan. 27th, a visit will be made by the members to the Pathological Department of St. Bartholomew's Hospital, where tea will be served at 4 P.M. in the Kanthack Library. The following demonstrations will be given: Dr. Mervyn H. Gordon, The Technique of Wassermann's Reaction; Dr. Mackenzie Wallace, (1) The Estimation of Blood Sugar in Diabetes; and (2) Abderhalden's Serum Diagnosis of Pregnancy; Dr. A. E. Stansfeld, The Projectoscope as a Method of Showing Pathological Specimens; Dr. J. W. Trevan, Recent Additions to the Hospital Museum; Dr. G. Graham, The Estimation of the Alveolar CO₂; Dr. Langdon Brown and Dr. A. Feiling, A Tumour of the Mid-brain.

Mr. William Hichens died at his residence in Redruth, Cornwall, on Jan. 15th, in his fifty-first year. He was a son of the late Dr. J. Harvey Hichens, and was educated at Epsom College and the London Hospital Medical School. He held several appointments at Redruth, being surgeon to the West Cornwall Miners' Hospital and Hospital for Women, and was also medical officer for the workhouse infirmary and public vaccinator. He was greatly interested in football, and was for 15 years president of the Cornwall Rugby Union. When at the London Hospital he was captain of the cricket and football teams. He was extremely popular in Redruth and the district, and much sympathy is felt there for his widow and two children.

THE CASE OF MR. NATHANIEL MAYNE.—The Irish newspapers give much prominence to the circumstances under which Mr. Nathaniel Mayne, the surgeon to the County Longford Infirmary, has been relieved of his duties by the governing body of that institution, subject, of course, to confirmation by the Local Government Board for Ireland of such action. The question at issue between Mr. Mayne and his immediate authority was the attitude, right or wrong, assumed by Mr. Mayne towards Sir Thomas Myles, Consulting Surgeon and Acting Lieutenant-Colonel, R.A.M.C., with the Forces in Ireland, who desired to operate upon a soldier for appendicitis in the wards of the infirmary. Mr. Mayne's contention was that his responsibilities in his official position did not allow him to sanction an operation in the infirmary theatre by Sir Thomas Myles, and Mr. Mayne's immediate authority by their decision must be considered to have taken an exactly opposite view. One side only of the matter has been described to us, but no doubt the Local Government Board for Ireland will have the whole story with full details before them to assist them in a decision which may easily have an important bearing.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BETTY, MOORE M., F.R.C.S. Irel., has been appointed Medical Officer to the Union Hospital, Enniskillen.
 BUNTING, DORA E. L., M.D. State Med., M.B. Lond., D.P.H. Camb., has been appointed Temporary Tuberculosis Officer for Sunderland.
 CLAPPERTON, T. J. M., L.S.A., has been appointed District Medical Officer to the Daventry Union.
 GIBBINS, H. B., M.D. Lond., has been appointed Medical Officer of the Tuberculosis Dispensary established at St. Bartholomew's Hospital in connexion with the National Insurance Act.
 GILMOUR, R. W., M.B., B.S. Durh., M.R.C.S., L.R.C.P. Lond., has been appointed District Medical Officer to the Droxford Union.
 LAVERY, T., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Rathfriland District of the county of Down.
 MITCHELL, A. PHILP, M.D., Ch.M., F.R.C.S. Edin., has been appointed Temporary Assistant Surgeon at Chalmers Hospital, Edinburgh.
 PAPADOPOULOS, T. G., M.B., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the Miller General Hospital for South-East London, Greenwich-road, S.E.
 SHEPHERD, D. R. C., M.B., B.S. Lond., has been re-elected Resident Medical Officer of the Middlesex Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN DISTRICT ASYLUM, Newmachar.—Assistant Physician. Salary £200 per annum, with board.
 BARNSELY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £120 per annum, with apartments, board, and laundry.
 BARRY EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.
 BARRY URBAN DISTRICT COUNCIL ACCIDENT AND SURGICAL HOSPITAL.—House Surgeon. Salary £250 per annum.
 BATH, ROYAL UNITED HOSPITAL.—House Physician. Salary £120 per annum, with board, lodging, and washing.
 BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with board and laundry.
 BIRMINGHAM CITY EDUCATION COMMITTEE.—Radiographer on two, and possibly three, half-days per week. Salary at rate of £75 per annum per half-day's service per week.
 BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £220 per annum, with apartments, board, laundry, &c.
 BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
 BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Senior and Junior House Surgeons. Salary £110 and £100 per annum respectively, with residence and board, &c.
 BIRMINGHAM MATERNITY HOSPITAL.—Female House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, and laundry.
 BIRMINGHAM UNION.—DUDLEY-ROAD INFIRMARY: Third Assistant Medical Officer. Salary at rate of £170 per annum. Fourth Assistant Medical Officer. Salary at rate of £150 per annum.
 SELLY OAK INFIRMARY: Assistant Medical Officer. Salary at rate of £180 per annum. All with apartments, rations, laundry, and attendance.
 BLACKBURN UNION WORKHOUSE AND COTTAGE HOMES.—Resident Assistant Medical Officer, unmarried. Salary £250 per annum, with apartments, rations, washing, and attendance.
 BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon and Third House Surgeon. Salary £150 and £130 per annum respectively, with apartments, board, and attendance.
 BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
 BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.
 BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and washing.
 BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
 BRISTOL EYE HOSPITAL.—House Surgeon. Salary £160 per annum, with board, residence, and laundry.
 BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
 BROMSGROVE, WORCESTERSHIRE ASYLUM, Barnsley Hall.—Locum Tenens Medical Officer.
 BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
 CAMBERWELL INFIRMARY, Brunswick-square, S.E.—Temporary Female Assistant Medical Officer. Salary at rate of £250 per annum, with board, lodging, and washing.
 CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
 CARDIFF, KING EDWARD VII.'S HOSPITAL.—Female House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £140 per annum, with board, laundry, and residence.
 CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.
 CITY OF WESTMINSTER UNION INFIRMARY, Fulham-road, S.W.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salary £160 and £140 per annum respectively, with board, residence, and washing.
 COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.
 DERBY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.
 DERBYSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.
 DOUGLAS, ISLE OF MAN, NOBLE'S HOSPITAL.—Resident House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
 DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.
 ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.
 EXETER CITY ASYLUM.—Assistant Medical Superintendent. Salary £250 per annum, with apartments, board, laundry, &c.
 FIFE DISTRICT ASYLUM, Cupar.—Senior Assistant Medical Officer and Assistant Medical Officer. Salary £220 and £170 per annum respectively, with rooms, board, and attendance.
 FULHAM TUBERCULOSIS DISPENSARY.—Senior Medical Officer. Salary £500 per annum.
 GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.
 GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, residence, and laundry.
 GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.
 GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.
 HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
 HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Anaesthetist. Salary 50 guineas per annum. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.
 HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Two House Surgeons, unmarried, for six months. Salary £30, with board, residence, &c.
 HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female House Surgeon and Female Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.
 LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.
 LEICESTER BOROUGH SANATORIUM AND TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £300 per annum.
 LEICESTERSHIRE EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
 LEWES, EAST SUSSEX COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £320 per annum.
 LIVERPOOL, CITY OF.—Female Assistant Medical Officer. Salary £350 per annum.
 LIVERPOOL STANLEY HOSPITAL.—House Surgeons and Physicians.
 LILANLEY BOROUGH EDUCATION COMMITTEE.—Ophthalmic Surgeon. Salary £50 per annum.
 LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum.
 MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Visiting Surgeon. Salary £100 per annum.
 MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
 MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer for the Crossley Sanatorium, Delamere Forest, Cheshire. Salary £100 per annum, with board, apartments, and laundry.
 MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.
 MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.
 MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.
 MANCHESTER ROYAL INFIRMARY.—Five Junior House Surgeons for three months. Board, residence, and laundry provided. Two Senior House Surgeons for six months, Five House Physicians for three or six months, and One House Surgeon to Ear, Eye, and Gynaecological Departments for six months. Salary at rate of £40 per annum, with board, residence, and laundry. All to be unmarried. Also Two Medical Officers for Out-patients and Accidents for six months. Salary at rate of £100 per annum, with board and residence. Also Accident Room House Surgeon for six months. Salary £100 per annum, with board and residence.
 MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Resident Surgical Officer at High-street Hospital. Salary £90 per annum, with board and residence. Also House Surgeon for three or six months. Salary at rate of £70 per annum, with board and residence. Also House Surgeon at Whitworth-street West Hospital for three or six months. Salary at rate of £70 per annum, with board and residence.
 MANCHESTER, VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Female Resident Medical Officer for six months. Salary at rate of £100 per annum, with rooms, board, and laundry.
 METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Two Assistant House Surgeons for six months. Salary at rate of £40 per annum, with board and washing.
 MIDDLEBROUGH COUNTY BOROUGH.—Temporary Chief Tuberculosis Officer.
 MIDDLESBROUGH EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.
 MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £85 per annum, with board, residence, and laundry.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen square, Bloomsbury, W.C.—Temporary Junior House Physician. Salary £100 per annum, with board and residence.

NEWCASTLE, CO. WICKLOW, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Assistant Resident Medical Officer. Salary at rate of £200 per annum, with board and residence.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £103 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry. Also Assistant House Surgeon for six months. Salary at rate of £103 per annum, with board, residence, and laundry.

PADDINGTON INFIRMARY, 285, Harrow-road, W.—Two Assistant Medical Officers for six months. Salary at rate of £250 per annum, with board, lodging, and washing.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £20 per annum, with board and residence.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with residence, board, and laundry.

RICHMOND, SURREY, ROYAL HOSPITAL.—House Surgeon. Salary £150 per annum, with apartments, board, and washing.

ROUSAY AND EGLISHAY, PARISH OF.—Resident Medical Officer. Salary £71 per annum, with free house (partly furnished) and garden.

ROYAL NATIONAL ORTHOPEDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon, unmarried. Salary £100 per annum, with board, washing, &c.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Assistant House Surgeon. Salary at rate of £50 per annum, with lunch and tea.

SALFORD ROYAL HOSPITAL.—Resident Surgical Officer and Casualty House Surgeon for six months. Salary at rate of £120 and £100 per annum respectively, with board and residence.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, and rations.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £30 per annum respectively, with board, residence, &c.

SHEFFIELD CHILDREN'S HOSPITAL.—House Surgeon. Salary £150 per annum, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOKE-ON-TRENT, STANFIELD SANATORIUM.—Resident Assistant Medical Officer. Salary at rate of £350 per annum.

STOKE-UPON-TRENT UNION.—Assistant Resident Medical Officer. Rooms and rations provided.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

THEROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £40, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anaesthetist. Salary £110 per annum, with board, residence, and laundry.

WALTHAMSTOW URBAN DISTRICT HOSPITAL FOR INFECTIOUS DISEASE, Chingford.—Resident Medical Officer. Salary £250 per annum, with rooms and board.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £125 per annum, with board, rooms, and laundry.

WOLVERHAMPTON UNION WORKHOUSE.—Assistant Resident Medical Officer and Medical Officer of Cottage Homes, unmarried. Salary £250 per annum, with apartments, rations, &c.

WORCESTER EDUCATION DEPARTMENT.—Female Assistant School Medical Officer. Salary at rate of £300 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

ORKSOP VICTORIA HOSPITAL AND DISPENSARY.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, coal, light, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Ollaberry, in the county of Shetland.

Births, Marriages, and Deaths.

BIRTHS.

BUTCHER.—On Jan. 16th, at Delgany, Heene-road, Worthing, the wife of W. J. Butcher, M.R.C.S., of a son.

COMRIE.—On Jan. 12th, at Manor-place, Edinburgh, the wife of John D. Comrie, M.D., F.R.C.P. Edin., of a daughter.

FOULDS.—On Jan. 14th, at Sandon-road, Edgbaston, the wife of Major Foulds, R.A.M.C., of a daughter.

GRAY.—On Jan. 10th, at Yew Tree Cottage, West Malling, the wife of Henry Gray, M.R.C.S., of a son.

PHIPSON.—On Dec. 18th, 1914, at Cairo, Egypt, Mrs. E. Selby Phipson, wife of Captain E. Selby Phipson, I.M.S., of a daughter.

MARRIAGES.

THOMAS—GENN.—On Jan. 16th, at St. Mary's, Ely, Martin Phillips Thomas, B.A., M.R.C.S., L.R.C.P., to Marion Brewster, youngest daughter of Billett Genn, of Ely, Cambs.

DEATHS.

BRYDEN.—On Jan. 16th, at Harmer-street, Gravesend, Surgeon-Major Richard Joseph Dryden, M.D., M.R.C.S., L.R.C.P., aged 58 years.

MERCER.—On Jan. 12th, at Budleigh Salterton, Edward Mercer, M.R.C.S., aged 86 years.

WATSON.—On Jan. 12th, at Hendre, Cheltenham, Deputy Surgeon-General George Alder Watson, I.M.S., Bengal Army (retired), aged 85 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.

Synopsis of the British Pharmacopoeia, 1914, and of the Poison Laws of Great Britain and Ireland. Compiled by H. Wippell Gadd, F.C.S., Barrister-at-Law. Eighth edition. Price 1s. net.

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir William Whitla, M.A., M.D., LL.D. Tenth edition. Price 9s. net.

Aids to Pathology. By Harry Campbell, M.D., B.S. Lond., F.R.C.P. Third edition. Price 3s. 6d. net.

A Text-Book of the Diseases of the Nose and Throat. By Jonathan Wright, M.D., Director of the Department of the Laboratories, New York Post-Graduate Medical School and Hospital, and Harman Smith, M.D., Surgeon to the Throat Department of the Manhattan Eye, Ear, and Nose Hospital. Price 21s. net.

BUTTERWORTH AND CO., London and the Colonies.

Butterworth's Workmen's Compensation Cases, October, 1913—October, 1914. Edited by His Honour Judge Ruegg, K.C., and Douglas Knocker, Barrister-at-Law, M.B. Lond., D.P.H., assisted by E. T. Dale, Barrister-at-Law. Price 12s. 6d. net.

CASELL AND CO., London.

Manual of Chemistry, Theoretical and Practical, Inorganic and Organic. Adapted to the Requirements of Students of Medicine. By Arthur P. Luff, M.D., B.Sc. Lond., F.I.C., and Hugh C. H. Candy, M.A., B.Sc. Lond., F.I.C. Fifth edition, enlarged. Price 8s. 6d. net.

CHICAGO SCIENTIFIC PUBLISHING COMPANY, 221, S. Ashland Boulevard, Chicago.

The Intervertebral Foramen. An Atlas and Histologic Description of the Intervertebral Foramen and its Adjacent Parts. By Harold Swanberg, Member of the American Association for the Advancement of Science. With an Introductory Note by Professor Harris E. Santee. Price \$3.

CHURCHILL, J. AND A., London.

Anatomy of the Human Skeleton. By J. Ernest Frazer, F.R.C.S. Eng., Lecturer on Anatomy in the Medical School of St. Mary's Hospital. Price 21s.

The Book of Prescriptions, with Notes on the Pharmacology and Therapeutics of the More Important Drugs and an Index of Diseases and Remedies. By E. W. Lucas, F.I.C., F.C.S. With Introduction by Arthur Latham, M.A., M.D., F.R.C.P. Tenth edition. Price 6s. 6d. net.

The Book of Pharmacopoeias and Unofficial Formulations. By E. W. Lucas, F.I.C., F.C.S., and H. B. Stevens, F.I.C., F.C.S. Price 7s. 6d. net.

GOVERNMENT PRINTING OFFICE, Washington.

Carcinoma of the Thyroid in the Salmonoid Fishes. By Harvey R. Gaylord and Millard C. Marsh.

HARRISON AND SONS, London.

Notes on Nursing. By Florence Nightingale. New edition.

HAZELL, WATSON, AND VINEY, London.

Hazell's Annual for 1915. Edited by T. A. Ingram, M.A., LL.D. Price 2s. 6d. net.

HEINEMANN, WILLIAM, London.

How Belgium Saved Europe. By Charles Sarolea, Ph.D., Liège, Litt.D. Brussels. With a Preface by Count Goblet d'Alviella. Price 2s. net.

Mutual Aid, a Factor in Evolution. By P. Kropotkin. Price 1s. 6d. net.

HOEBER, PAUL B., New York.

Fever: Its Thermotaxis and Metabolism. By Isaac Ott, A.M., M.D., Professor of Physiology, Medico-Chirurgical College, Philadelphia.

Notes, Short Comments, and Answers to Correspondents.

CAMPAIGN LITERATURE AGAINST VENEREAL DISEASE.

SPEAKING before the Royal Commission on Venereal Diseases, Sir Thomas Barlow expressed his belief that the public mind was now in a state of most promising preparedness to receive admonition and to recognise the moral obligation of dealing with these subjects. In 1913 a declaration of leading members of the medical profession in the daily press protested against the "conspiracy of silence" on the subject. Mr. F. W. Giles, M.B. Durh., a member of the council of the White Cross League, has published through Messrs. P. S. King and Son, price 6d., a little pamphlet on "The Campaign against Syphilis," which seems a suitable contribution to the task of public enlightenment. It deals with the nature and effects of venereal disease and with the importance to the community of its treatment and prevention. It is dedicated by permission to Sir Thomas Barlow.

THE "PERMUTIT" SYSTEM OF WATER SOFTENING.

AN interesting demonstration of improved methods of water softening was given at the offices of United Water Softeners, Limited, Imperial House, Kingsway, London, W.C., on Jan. 12th. The "permutit" system may be described first, as its simplicity enables it to be applied locally for domestic purposes. Permutit is substantially an artificial zeolite, a compound of silica, alumina, and soda. Its essential property is that known as base exchange. In contact with hard water, for example (the calcium and magnesium salts constituting the hardness), permutit effects an exchange. It abstracts these salts in exchange for a soda complement, so that hard water passed through it becomes soft because the lime and magnesium salts are left behind and the corresponding sodium salts go forward. The action is perfectly automatic, and when the soda permutit is exhausted it may be regenerated by passing through the permutit column or cylinder some salt solution, when the calcium and magnesium are eliminated as chlorides in favour of the retention of soda permutit ready again for the treatment of further volumes of hard water. This method is capable of reducing a water of a high degree of hardness to one showing no hardness at all, and which therefore instantly forms a lather with soap. In some cases the permutit system is employed to finish the work of well-known economical softening methods, as, for example, those depending upon the addition of lime or of black ash (crude carbonate of soda). The utmost efficiency of these chemical methods in removing lime and magnesium salts is, however, reached when the treated water still retains some 5 degrees of hardness. The water so far softened is reduced to an imperceptible hardness when it is passed through the permutit column. By a combination of these processes, the "Lassen-Hjort" and the permutit, an economical and complete softening of the water is effected. For domestic work all that is necessary is a permutit cylinder, and a very favourable impression of its efficiency has been made upon those occupying houses situated in hard water districts where it has been installed. When treated with manganese, permutit takes iron completely out of water. The advantages of a softened water-supply need not be set out. In our own columns we have often drawn attention to the hardships of a hard supply, but we think that the consumer should not be called upon to remedy the evil and that this is a duty which should fall upon the supply company. So long, however, as that is not the case, permutit will effect a revolution of the utmost value to the householder.

PERSONAL MEDICINE CASE FOR USE ON ACTIVE SERVICE.

SINCE the commencement of the war medical men have frequently been asked for advice upon the selection of medical equipments for personal use whilst on active service, and in view of this Messrs. Burroughs Wellcome and Co. have introduced "Tabloid" Brand Medicine Pocket-case, No. 109, which is specially adapted to meet the requirements of those serving with His Majesty's forces. The contents of this case may be varied to order, so that the medical man may prescribe the particular products which he considers best suited to the individual needs of his patient. The case itself is of polished, black-japanned metal. In design it is flat, and similar in shape and size to a large pocket cigar-case. Consequently it fits conveniently into the pocket of the service

jacket, its rounded corners preventing any risk of tearing the material. The tubes of "Tabloid" and "Soloid" medicaments are securely held in position by an aluminium framework, divisions of which come between the phials, thus obviating the use of loose packing. In the case of liquids each glass container is enclosed in a metal case, rendering it impossible for any of the contents to leak out and soil other products. Further particulars may be obtained from Messrs. Burroughs Wellcome and Co. on application, together with a list of standard contents, which include both medicinal and first-aid requisites.

HOW TO PRESERVE HEALTH IN WAR TIME.

THE Women's Imperial Health Association, of 7, Hanover-square, W., have issued a word in season to the women of Great Britain in the shape of a four-page leaflet, entitled "Health in War Time." It consists of useful information under the following heads: Keep the Homes Clean; Keep Ourselves Clean; Get to Love Fresh Air; Eat the Right Food; Drink the Right Drinks; Cultivate Regular Habits; Help to Prevent Epidemics; and Take Care of Our Convalescent Soldiers. How we may all do these things and thus help the Empire is explained in the leaflet.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. W. W. C. Topley: The Influence of Salt-concentration on Hemolysis (communicated by Prof. F. W. Mott).—Mr. G. Smith: The Life-cycle of Cladocera, with Remarks on the Physiology of Growth and Reproduction in Crustacea (communicated by Mr. E. S. Goodrich).—Mr. T. Goodey: Investigations on Protozoa in Relation to the Factor Limiting Bacterial Activity in Soil (communicated by Prof. F. W. Gamble).—Mr. S. Hata: On the Mesodermic Origin and the Fate of the so-called Mesectoderm in Petromyzon (communicated by Prof. E. W. MacBride).—Prof. J. C. Bose: The Influence of Direction of Homodromous and Heterodromous Electric Currents on Transmission of Excitation in Plant and Animal (communicated by Prof. S. H. Vines).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 8.30 P.M.

Presidential Address:

Dr. F. W. Mott: The Application of Physiology to the Study of Mind in Health and Disease.

THURSDAY.

SECTION OF NEUROLOGY (Hon. Secretaries—T. Grainger Stewart, H. Campbell Thomson): at 8.30 P.M.

Presidential Address:

Dr. H. G. Turney: Vasomotor Neuroses.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., X Ray Evening. Demonstration and Exhibition of Items of Interest connected with the War by Dr. I. Bruce, Sir James M. Davidson, Dr. H. Humphris, Dr. A. C. Jordan, Dr. H. Orton, Mr. G. Scott, Dr. S. Melville, Dr. R. Knox, and others.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

TUESDAY.—8.30 P.M., Exhibition of Specimens. Resolution as to Donation to The Professional Classes' Relief Fund. Sir John Collie: Fraudulent and Neurasthenic Cases (discussion to be opened by Dr. F. O. Arnold).

HUNTERIAN SOCIETY.

WEDNESDAY.—4 P.M., Visit to the Pathological Department of St. Bartholomew's Hospital. Demonstrations will be given of Wassermann's Reaction, Estimation of Blood Sugar, Abderhalden's Serum-diagnosis, Estimation of Alveolar CO₂, Projectoscope, Recent Additions to the Hospital Museum.

HARVEIAN SOCIETY OF LONDON.

THURSDAY.—8.15 P.M., Clinical Meeting at Paddington Green Children's Hospital. Cases will be shown.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3 P.M., Lecture:—Dr. Dan McKenzie: Endoscopy.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture II.)

THURSDAY.—3 P.M., Mr. H. G. Plimmer: Modern Theories and Methods in Medicine—Lecture II: Immunity (Illustrated by experiments, micro-photographs, &c., and Cinematograph films.)

FRIDAY.—9 P.M., Dr. D. Clerk: Gaseous Explosions.

CHADWICK PUBLIC LECTURES, Lecture Hall, Royal Society of Arts, John-street, Adelphi, W.C.

FRIDAY.—5.15 P.M., Dr. F. M. Sandwith: War and Disease—III., The Great European War.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill street.—4.30 P.M., Mr. H. Platt: Birth Palsies.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed exclusively "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1914 are now ready. Bound in cloth, gilt lettered, price 16s., carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2s., by post 2s. 3d.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

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(Taken daily at 8.50 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 20th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 14	30.080	W.	...	55	52	45	47	50	Cloudy
" 15	29.830	W.	0.10	69	52	47	45	47	Cloudy
" 16	29.380	N.W.	0.01	65	47	45	42	45	Cloudy
" 17	29.970	N.W.	...	62	40	35	34	37	Fine
" 18	30.364	N.	...	57	41	35	32	35	Fine
" 19	30.470	W.	...	47	45	35	37	38	Overcast
" 20	30.246	S.W.	...	51	48	38	42	43	Overcast

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Clinical Medicine, Bulletin of the Johns Hopkins Hospital, Canadian Journal of Medicine and Surgery, British Journal of Dental Science, Saint Paul Medical Journal, American Journal of Obstetrics, Indian Medical Gazette, Proceedings of the Royal Society of Medicine, British Dental Journal, Tropical Diseases Bulletin, American Medicine, Journal of Surgery, Journal of Comparative Therapeutics.

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An Address

ON

THE TELEPHONE ATTACHMENT IN SURGERY.

*Delivered before the Medical Society of London on
Jan. 25th, 1915,*

BY SIR JAMES MACKENZIE DAVIDSON,
M.B., C.M. ABERD.,

CONSULTING SURGEON TO THE ROENTGEN RAY DEPARTMENT,
CHARING CROSS HOSPITAL.

GENTLEMEN,—My attention was first called to the possibility of using the telephone in surgery by a leading article in *THE LANCET* 32 years ago.¹ The article was concerned mainly with the attempts which had been made to determine by electrical means the position of the bullet in the body of President Garfield during the two months which elapsed between the infliction of the wound and his death in the summer of 1881. These attempts were made with an induction balance, but Professor Graham Bell, speaking afterwards at a meeting of the American Association for the Advancement of Science, suggested, according to *THE LANCET*, that:—

Either for the detection of bullets or for the estimation of the depth of a ball already localised by the induction balance a simpler electrical contrivance may be employed. It consists of a telephone, to one terminal of which a fine needle is fixed, and to the other a plate of metal of the same nature as the needle. The plate is placed on the limb to be examined, and the needle is thrust in where the bullet is believed to be, and when it strikes the ball a galvanic battery is formed within the body. This will cause a click to be heard in the telephone each time the bullet is struck. This is a far simpler apparatus than the induction balance, and one far more easily procured, and it would be well if surgeons called upon to treat gunshot wounds would test its practical utility. Professor Graham Bell's efforts to apply electricity to surgery are most praiseworthy, and the results he has obtained merit the attention of surgeons.

Possibly several workers carried out Graham Bell's suggestion. For my own part, I saw immediately that this was a method which ought to be tried at the first opportunity, and a suitable case presented itself at the Aberdeen Royal Infirmary in 1887. A woman had been shot in the face by a revolver, and the bullet had gone into the antrum and had caused a good deal of destruction of bone. The arrangement which I made for Dr. Ogilvie Will, who performed the operation, consisted in the first place of a silver plate 6 in. long and 4 in. wide, which was placed upon the patient's skin, the skin being freely moistened with salt solution in order to make it as good a conductor as possible. This plate was then connected to one terminal of the ordinary Bell telephone, and the other terminal was attached to a silver probe, thus carrying out Bell's condition as to metals of the same nature. On introducing the probe into the entrance wound no sound was heard until a considerable depth had been reached, when a distinct rattle became audible, characteristic of contact with the metal, and the bullet was extracted without any difficulty. Some years later a London Hospital physician, who was bringing me cases at a time when I was using the telephone probe to verify the results of early X ray localisations, learned the use of this instrument,

and subsequently showed it to Sir Frederick Treves, who used it, greatly to his satisfaction, in the South African War. More particularly it enabled him to differentiate, as neither the common probe nor the finger could do, between a distorted and broken up Mauser bullet and a fragment of bone.²

Until quite recently I took it for granted that the condition laid down by Graham Bell—namely, that the instruments used for exploration must be of the same metal as the plate placed upon the patient's skin—was essential to the success of the method. It is only since the outbreak of the present war, while assisting at various operations and noticing the considerable difficulty experienced by surgeons in finding the bullets, even after the most precise X ray localisation, that I began to experiment again with the telephone, with the result that I have now extended its applicability to any metallic instrument to which the surgeon chooses to attach it.

THE PHYSICS OF THE TELEPHONE.

Before describing in detail the procedure I recommend, which has been tried successfully in a number of cases, I should like to make a few preliminary remarks about the physical questions involved in the construction of the telephone, since a clear understanding on this point is necessary to an intelligent appreciation of the use of the telephone as a surgical instrument. With the use of the telephone in ordinary life everyone is familiar, but perhaps I may be pardoned for reminding my colleagues of the nature of its construction and the principles upon which it acts. The Graham-Bell telephone consists of a permanent magnet, around one pole of which is a helix or coil of very fine insulated wire. The fineness of the wire and the number of its turns decide the resistance of the telephone, and, incidentally, affect its cost. If the currents for which it is to be used are very small, while the voltage or electrical pressure is high, the number of turns in the coil must be correspondingly large. On the other hand, if the voltage is very small there should be fewer turns, and these of thicker wire, so that the resistance may not be too great. The action of the telephone depends upon variable currents passing through the coil, which cause variations in the magnetic strength and lead to the attraction and release of a small, thin iron disc placed in front of the magnet. This vibratory action of the disc results in the emission of sound waves. It is by far the most sensitive instrument for the detection, by sound, of the feeblest intermittent currents, but it gives no sound during the steady passage through it of a continuous current. This fact has the most practical bearing on the method of using the telephone in surgery, as I shall hope to demonstrate shortly.

When two dissimilar metals are separated by an electrolyte they form the elements of an ordinary primary battery, and wires attached to them, on being joined together, convey an electric current. The pressure or voltage depends upon several factors, but generally it can be stated that the difference of potential between various metals rarely exceeds two volts. Until recently I entertained the idea that if dissimilar metals were attached to the terminals of the telephone the moment that these metals touched the human body the latter would act as an electrolyte and a click would be heard in the telephone, which might

¹ *THE LANCET*, Jan. 20th, 1883, p. 108.

² *Brit. Med. Jour.*, March 10th, 1900.

impair the value of the method for the subsequent detection of a bullet by contact. On making the experiment, however, I found that this effect was in no way prejudicial. It is true that a slight sound is sometimes heard when the instrument first comes in contact with the tissues, but not even the least experienced person could confuse it with the sound produced on contact with the embedded bullet or other metal.

I have tried many pairs of ordinary metals in order to discover which would yield the best result. The metals for which we have to search most frequently are lead, nickel, copper, iron, and some of the iron alloys used in shell manufacture. The surgeon's metallic instruments are usually steel, silver, or nickel-plated. With any of these instruments attached to one terminal of the telephone I find that on contact with any of the above-mentioned embedded metals the loudest sound is elicited when a plate of carbon, such as is used in an ordinary bichromate cell, is attached to the other pole and placed, in the manner described at the beginning, upon the moistened skin of the patient. The result may be still further improved if a fine layer of iodine is interposed between the skin and the carbon plate; this is readily done by brushing the skin with the usual iodine solution employed as a disinfecting agent.

The currents generated in these circumstances are, of course, small in amount, and of low pressure. It is important, therefore, to reduce the resistance of the body as much as possible, and on this account it is necessary to use on the skin a plate of carbon of as large a size as is convenient, and to increase the conductivity of the skin by moistening it well with the usual salt solution. The resistance of the human body is high, varying from 3000 ohms through the skin when dry, down to 300 when the skin is moistened, and it appeared likely, as has proved to be the case, that the cheap telephones of low resistance would be best suited to detect these small currents. A telephone of 60 ohms resistance, costing only a few shillings, gives a louder sound than the more expensive high resistance telephones used in wireless telegraphy. I have here two telephones of 40 ohms resistance, and I am investigating as to how far the resistance may be lowered in order to obtain the most distinctive sound.

THE SURGICAL PROCEDURE.

Briefly put, the method I advocate for adoption is the use of a telephone, preferably with double receivers, connected together by means of a steel or elastic band, so that each ear has its separate receiver. This not only increases the intensity of the sound, but also serves to cut off extraneous sounds which might interfere with the audibility of the telephone. Should the surgeon wish to have one ear uncovered so as to be able to attend to the remarks of anyone near him, it is quite a simple matter to move aside one of the receivers. This double arrangement, however, is not essential, and a single telephone gives quite good results if the surgeon's hearing is acute. The carbon plate is placed upon the patient's moistened skin, and plaster or bandage may be used for holding it in position tightly against the skin. The other end of the telephone should have attached to it a bare wire, of silver preferably, which has been disinfected, by boiling or otherwise as the surgeon may direct. One end of this wire being attached to the telephone terminal, which of course cannot be

disinfected readily, the other end need be handled only by the surgeon or his assistant with the usual antiseptic precautions, and the wire can either be wound round any instrument it is desired to use, or, as I have demonstrated this evening, a spring clip may be employed by means of which the wire can be conveniently brought into connexion with the knife, probe, needle, or forceps, as the case may be.

Under these conditions, if the instrument is introduced into the body it will, on first contact with any metal, give rise to an unmistakeable click carried through the telephone, and then, if it be gently moved or slightly disturbed so as to make a rubbing contact with the foreign body, an equally unmistakeable loud rattle will be elicited. By such means the metal can be dissected out (if the knife is used), or otherwise freed from the encircling tissues, because a constant control can be exercised over the foreign body by reason of the microphonic rattle it produces when the instrument comes into contact with it. A very useful point to bear in mind is that in cases where a foreign body has been carefully localised by means of X rays, a needle can be attached to the telephone in the manner stated, run down on to the foreign body, and, when the characteristic sound is heard, can be maintained in its position as a guide before any incision is made.

The telephone attachment to forceps is particularly useful, because these can be used as a probe, and then, when opened to include the foreign body, this action gives a characteristic sound which betokens when the foreign body is between the jaws. I had a pair of bullet forceps made some time ago which were thoroughly insulated outside with vulcanite, the bare metal only remaining on the inner side of the jaws. This modification has the advantage that the sound can only be heard when the bullet is actually between the jaws, otherwise an equal sound, and a quite misleading one, would be heard if the forceps were not grasping the bullet but were only touching it on their outer side.

It is obvious that the surgeon must be careful, when the telephone is attached to his instrument, not to allow that instrument to touch any other metallic instrument which may be already in the wound, such as a retractor or artery forceps, because, of course, this will make an audible impression in the same way as the embedded metal itself. As a rule, this is not difficult to avoid, but should he be exploring a narrow and deep wound where there is any difficulty in preventing possible contact with his instruments I would recommend him to place a rubber drainage tube over his exploring instrument, except in the neighbourhood of its point. In this way he will conveniently insulate it from any of the surgical instruments which it might encounter along the walls of the wound. Another simple plan is to cover the needle or probe with a thin layer of shellac, by heating and applying the shellac in the same way as with an electrolysis needle when the action is desired to be confined to the point. By such means the bulk of one's instrument may be insulated.

UTILITY IN OPHTHALMIC SURGERY.

The telephone arrangement seems to me to have a special utility in ophthalmic surgery. For many years ophthalmic surgeons have successfully extracted very small pieces of iron or steel from the eyeball by means of a powerful electro-magnet.

Unfortunately, if the lodged foreign body is of non-magnetic metal, such as shot, for example, unless it is visible in the anterior part of the eye, its extraction is impossible, and the eye in consequence is lost. It might be well worth attempting the removal of such bodies with the telephone attachment, because a very distinct sound is produced in the telephone on contact with the minutest metal particle. Indeed, particles so small as to be almost invisible would be quite appreciably audible. The ideal procedure would be to have the foreign body precisely localised by means of X rays, as is being constantly done at Moorfields and other eye hospitals, and then to attempt its removal with the aid of the telephone. I am afraid, however, that this method will not be of much assistance in cases where the foreign body is lodged in the vitreous and not firmly attached to the coats of the eyeball. From experiments with the eyes of dead animals I find that a small shot, placed in the vitreous cavity, is not easily detected by means of a needle with the telephone attachment. It has already been made plain that the whole success of this method depends upon an actual momentary contact with the metallic foreign body. The vitreous is of so yielding a nature that the small foreign body is pushed away in front of the needle, and this intervening layer of vitreous prevents a good metallic contact from being made. Should the foreign body happen to be between the needle and the fundus, then it can be readily heard, and of course if it is embedded in the coats of the eye there is no difficulty whatever in obtaining the usual sound on impact with the exploring needle. In spite of the difficulty with the vitreous, I would suggest that, before enucleating an eye containing a non-magnetic foreign body, the ophthalmic surgeon should first attempt the removal of the foreign body with the telephone attachment.

CASES.

Comparatively recently I have had two cases of small pieces of shell in the orbit. The first of these was brought to me by Mr. Cruise. The case had been radiographed by Captain Howard Humphris, of the 3rd London (Wandsworth) Military Hospital, and the fragment was indicated at the upper and inner part of the left orbit. Mr. Cruise asked me to let him try the telephone for its removal. At that time I had not ascertained that carbon was the best element to place upon the patient's skin, and I used a piece of platinum foil which I had in an old Grove's battery. This was bandaged on a skin thoroughly moistened with salt solution (the position is of no consequence), and a long needle was placed in a holder and fixed to the other end of the telephone. The patient having been anaesthetised Mr. Cruise, with the double telephone at his ears, introduced the needle in the direction indicated by the radiographs, and at some considerable depth he heard the microphonic rattle. Sir A. Pearce Gould, who was present on this occasion, held the needle in position while Mr. Cruise cut down along it through a comparatively small incision. The telephone was then attached to the forceps, the rattle again being distinctly heard, and the foreign body was removed immediately afterwards, the whole operation being carried out with the least possible disturbance. I think such a case very well illustrates the advantage which the surgeon gains by trusting to his hearing instead of making a large wound and retracting its walls, and depending upon his finger and his sight for the detection of the foreign body.

The next case, also in connexion with the orbit, was one in which Mr. Armour removed a piece of shell which had entered the head above the right eye and had gone through into the left orbit, where it lodged. Here again Mr. Armour ran down a needle attached to the telephone, and heard the sound on contact with the foreign body before he made any incision. Mr. Herbert Menzies assisted him at this operation. The foreign body was successfully removed, and the patient, whose eye is now normal, has had no subsequent trouble.

The same arrangement has now been used successfully in quite a number of cases. The latest of these may be cited, since it is especially interesting owing to the fact that the flattened casing of a German bullet was deeply embedded in the lumbar region of a very large and muscular man. The depth of the bullet in the tissues was between 3 and 4 inches, and Mr. English, who successfully removed it after it had previously been localised very accurately by means of X rays, ran a long needle down on to it, and heard the contact through the telephone before making an incision. He found the telephone most useful throughout the operation, which was made more expeditious in consequence.

In view of these cases I would take the liberty of suggesting that the surgeon, now that the telephone is available, should go to the trouble of altering somewhat his technique. Instead of trusting to his sense of touch through his rubber-gloved fingers he should trust to his sense of hearing, and guided by this it ought to be possible for him not only to find the foreign body but to free it from its surrounding entanglements. With the aid of the telephone he can always keep in touch with its boundaries, whatever the surgical instrument he may be using at the time; and finally, by means of his forceps he should be able to remove it through a comparatively small incision and with the least possible disturbance of the parts. This necessarily implies some preliminary practice and, what seems to be still more difficult, some alteration of habits long since acquired. The special value at the present moment of such a procedure as the use of the telephone, in view of the large numbers of operations which are necessary in cases returned from the seat of war, needs no insistence, and I believe that the time will come when no surgeon will attempt to remove a deeply embedded metallic body without having this telephone attachment at his command.

MODIFICATIONS.

Of the modifications which might be proposed in the general arrangement the most obvious is the introduction of a small dry cell into the circuit. I have not found, however, any marked advantage to accrue, and on the ground of absolute simplicity the method as already described seems to be preferable. At the same time the battery experiment is easily tried, with the small dry cells now used for hand lamps, and quite portable. One objection to the battery is that if it is interposed the sound produced on contact of the instrument with the tissues is heard very distinctly, and it seems to me that with the battery there is a great risk of stray and misleading sounds occurring in the telephone. In view of the fact also that one might be in districts where a battery was not available, it seems better to keep to the arrangement outlined above, especially now that the carbon plate is employed, which is practically indestructible and requires no attention or renewals.

Several attempts have been made over a number of years to apply electricity in some form to this surgical purpose. The idea of using electricity for the detection of bullets embedded in tissues has been traced back to 1862, when a method was brought forward, apparently with no great success, by Professor Favre, of Marseilles. Ten years later a civil engineer, named de Wilde, proposed the use of an electric bell as the signal for the presence of a metallic body in the tissues. In the case of President Garfield, as I stated at the beginning of this paper, the induction balance was employed; this last I do not look upon as a practical method of locating bullets, all that it does being simply to reveal their presence. The telephone, I believe, will be found the most simple and reliable method for aiding the surgeon in the removal of a bullet previously localised by means of X rays.

If something other than the sound of a telephone were required—for instance, in the case of a deaf surgeon—it could be obtained by a modification of the method I have been advocating. Instead of taking the current through the telephone it could be passed through a suitably wound galvanometer and the movement of the galvanometer needle would then indicate contact with the metal, or this arrangement could work as a relay and a bell would ring every time the bullet was touched by the surgeon's implements. It seems to me, however, that these are less practical than the simple plan advocated in this paper, and I have every confidence in recommending it to the attention of the surgeon.

SPLENECTOMY FOR ENLARGED SPLEENS WITH ANÆMIA.¹

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At the risk of being regarded as elementary I would like in the first instance to recall to your minds very briefly something of the physiology of the spleen. It has in part, as you will remember, a very slow blood current owing to the terminal arrangement of some of its arteries, which do not end in capillaries but in dilated spaces in the splenic pulp. In this slow current the leucocytes pick up the damaged and worn-out red corpuscles, digest them, break up their colouring matter, and with part of it produce some, at all events, of the colouring matter of the bile. Beyond this main function it is probable that the spleen takes some part in the destruction of infections, again through the leucocytes in its meshes, and it may have a hormonal function which to some extent controls pancreatic secretion.

For many years past the spleen has occasionally been removed for various conditions, for displacement with or without rotation of its pedicle, for cystic disease, for traumatism, or for what has been called simple hypertrophy. This last condition probably was an early stage of the splenic enlargement with anæmia, which we now operate on under the name of Banti's disease, acholuric jaundice, &c. However that may be, splenectomy for the conditions I have mentioned above proved to be a reasonably safe procedure and fully justified. Unfortunately the ardour of some surgeons led them to remove the enlarged spleen for leukæmia with ghastly results. I do not know a well-authenticated

case in which the patient recovered, and happily we are all agreed that the operation in leukæmia is quite unjustifiable. Experience of splenectomy has shown that a patient whose spleen has been removed may live a perfectly normal life under ordinary conditions and that the expectation of life is not shortened. The assertion has been made that therefore a patient is no worse off without a spleen than with one, but this seems to me hardly justified at present. This may not be true if the patient is involved in a struggle for existence against an infection—pneumonic, typhoidal, pyogenic, or similar poison—when the whole forces of the body may be necessary to carry the fight to a successful issue. The only case I am acquainted with bearing on this point is one mentioned by French;² the patient, a boy aged 6, survived both measles and scarlet fever after splenectomy. It would be interesting to know if in other cases recovery has occurred after similar illnesses. In the absence of the spleen other organs appear to carry out its work—the lymphatic glands, the bone marrow, and the liver.

Under the title "enlarged spleen with anæmia," which I have taken as my subject, several conditions are grouped together; in all of them we find enlarged spleen, marked reduction in the number of red corpuscles and in hæmoglobin, with either some degree of leukopenia, a normal leucocyte count, or one that is somewhat increased. The enlargement of the organ and the diminution in the red corpuscles appear to be due to great exaggeration of the chief normal function of the spleen. This exaggerated function may be excited in different ways, in one case by the poison of syphilis, in kala-azar and in malaria by the particular parasites associated with these diseases; perhaps in other cases a streptothrix as suggested by Gibson³ may be the stimulation. Further investigation is not unlikely to reveal other provocative agents of a similar kind.

I said just now that under the title "enlarged spleen with anæmia" various conditions are described having certain common features. Then comes divergence, and further knowledge is required to determine whether we have to deal with really different diseases provoked for instance by different forms of infection, or merely with accidental divergences due to the different reaction of individual patients' tissues. Under the names Banti's disease, acholuric jaundice, hæmolytic jaundice, and syphilitic splenomegaly we find grouped most of the splenomegalies with anæmia, at all events in this country. Banti's disease implies in addition to enlarged spleen and anæmia a marked tendency to hæmorrhages chiefly from the gastro-intestinal tract, ascites, and in some cases cirrhosis of the liver or thrombosis of some part of the portal system. I propose to show you a typical example.

Acholuric jaundice has additional features which the name implies, jaundice with an absence of bile in the urine. The jaundice appears very early in life and has been described as congenital; there is in addition an unusual fragility of the red corpuscles, but this may entirely disappear after splenectomy.

Hæmolytic jaundice resembles in many respects acholuric jaundice, but the jaundice does not appear until, it may be, some years after birth. The urine is deeply coloured, but may not contain the ordinary bile pigments, the red corpuscles are unduly fragile, and cholecystitis with or without gall-stones may occur.

¹ A lecture to a post-graduate class at the Birmingham General Hospital.

² Proceedings of the Royal Society of Medicine, vol. vii., No. 5, Clinical Section, p. 77.

³ Quarterly Journal of Medicine, January, 1914, vol. vii., No. 26.

Syphilitic splenomegaly with anæmia appears to be due to congenital syphilis, and may persist despite antisyphilitic treatment, including the administration of salvarsan. In the few cases I have seen recorded there is no mention of hæmorrhages occurring.

My own experience of splenectomy for enlarged spleen with anæmia comprises three cases which I now describe; they were all referred to me from the medical wards by my colleague, Sir Robert Simon. Two other cases with enlarged spleen are present for your examination. So far neither of them is the subject of anæmia, but we hope to keep them under observation that we may learn what their future will be, especially as to whether at a later date they will develop anæmia and the other changes sometimes associated with it.

CASE 1. *Banti's disease; splenomegaly, anæmia, hæmatemesis, melæna, ascites; splenectomy.*—The patient, aged 19, was admitted to the General Hospital under Sir Robert Simon on June 19th, 1913, complaining of pain in the abdomen and of passing blood by the bowel. The patient was fairly well nourished, but looked very anæmic and ill; the temperature was 101° F. and the pulse 128. The past history showed that for about six years he had complained at times of aching pain in the upper abdomen, generally coming on some time after a meal and relieved by the taking of food. The pain was not constant; it lasted only a few minutes as a rule; vomiting did not occur; and there were often intervals of freedom from pain which might last weeks. Four days before admission when getting out of bed he suddenly felt very weak and could hardly get up. He experienced no pain, but stayed in bed all day, and noticed that the bowel action was dark red in colour; this continued until the patient came to hospital. On the night of admission he vomited 10 oz. of bright-red clotted blood, and this hæmatemesis with the past history suggested at first duodenal ulcer.

The spleen was found to be enlarged; it extended inwards to the linea alba; it felt hard and rather uneven, but was not tender. The only other point needing mention was the presence of soft bruits, systolic in time, heard over all the heart valves. Bleeding from the bowel continued for three days and was treated by the administration of horse serum. The blood examination on June 25th showed red cells 1,800,000, white cells 10,000, and hæmoglobin 20 per cent. On July 8th the figures were—red cells 1,900,000, white cells 7500, and hæmoglobin 30 per cent. On the 11th it was noted that the abdomen was becoming distended and the surface veins prominent. On the 14th distension of the abdomen was more marked and the patient's colour did not improve. On the 19th distension was marked and there was much fluid in the abdomen. The pulse ranged from 120 to 96, but very rarely was less than 108. The temperature varied from 98° to 101°, but was usually from 99° to 100°; the respirations were from 24 to 36. The urine rarely exceeded 30 oz.; its specific gravity was rather low, but it contained no abnormal constituent.

I saw the patient on several occasions with Sir Robert Simon, and we arrived at the conclusion that he was suffering from Banti's disease. Operation was discussed, but postponed in the hope that as there were no fresh hæmorrhages the general condition would improve. This hope was, however, not fulfilled; on the contrary, a large and increasing ascites developed, and we felt that the prospect of a successful operative interference was diminishing rather than increasing, and the patient was therefore submitted to operation on July 21st.

Operation.—The incision commenced in the middle of the epigastrium high up and extended outwards below and parallel to the left costal margin, then down the linea semilunaris to the level of the umbilicus. A large quantity of pale yellow, slightly turbid fluid estimated at several pints escaped from the peritoneal cavity; this fluid appeared to be paler and thinner than the ordinary fluid of ascites due to cirrhosis of the liver. The spleen was very carefully delivered through the extensive incision; it was fortunately found to be free from adhesions. The pedicle contained enormous vessels, all of which were free from thrombosis, but in the walls of the pedicle were numerous small masses

of tissue which were evidently spleniculi. It was determined to tie the pedicle in sections with silk; when this had been partly accomplished some of the vessels tore owing to the weight of the organ. The remainder of the pedicle was therefore clamped, the spleen cut away, and the vessels unsecured were tied individually, and finally a ligature was tied round the whole stump of the pedicle so that it was absolutely dry. The liver was quite free from cirrhosis, and no thrombosis of vessels was recognised, but owing to the patient's feeble condition it was impossible to make any systematic investigation on this point. The abdominal incision was closed, and whilst this was being effected 1½ pints of normal saline were transfused into one of the veins of the arm, as collapse was rather marked.

The spleen with its contained blood weighed 4 lb.; it was somewhat harder than a normal spleen and was practically free from perisplenitis. Examination of the ascitic fluid showed that it had a specific gravity of 1011; its reaction was alkaline; it contained a heavy cloud of albumin, and was free from sugar, from urea, and from blood. Microscopically a few small round and oval cells were found.

On the day following the operation the patient had completely recovered from the shock, and at the end of a week he looked decidedly better; the pulse was then generally below 100. The blood count was: red cells 2,700,000, white cells 12,500, and hæmoglobin 50 per cent. After this time improvement was slow; the pulse again quickened, and was often as high as 120 and over. About the middle of August there was considerable abdominal pain, vomiting occurred several times, and occasionally diarrhoea; a good deal of ascitic fluid was present, and the boy looked thin and anæmic. Soon after this he was sent to the Jaffray Hospital, and on Sept. 8th was allowed to get up; his pulse, however, was still quick, generally 110 or higher, but he gained 3 lb. in weight in eight days. Becoming discontented he left the hospital on Sept. 25th, and was lost sight of until recently.

Subsequent condition.—The patient was examined on Dec. 9th, 1913. He had gained weight and felt well except that he tired easily. It was thought that a little free fluid existed in the abdomen. The red count was 4,000,000, hæmoglobin 40 per cent., and leucocytes 16,000. In May, 1914, the red count was 4,000,000 and white cells 12,000. The abdomen appears to be free from fluid and the patient is at work as a railway porter. He occasionally has slight epistaxis.

CASE 2.—Male, aged 20. Shop assistant. Admitted under Sir Robert Simon Feb. 9th, 1914. Complaint on admission, jaundice four months ago, since which he had been confined to bed with intermittent pain in the left flank. The patient stated that previous to this time his health had been good. Father, mother, six brothers, and three sisters are in good health.

The present illness commenced in the middle of October, 1913, with an attack of jaundice lasting about three weeks. Since this time he had felt weak though not very ill. When admitted he was found to be muscular but distinctly thin; the face was pale and sallow, but there was no actual jaundice. The temperature was 101° F., pulse 120, and respirations 24. The teeth were very bad, many molars missing and the incisors of the upper jaw decayed; the tongue was clean but rather dry. The abdomen was relaxed; there was no pain or tenderness. The spleen was found to be greatly enlarged; it reached downwards to the mid-Poupart line, and 2 inches to the right of the middle line of the abdomen. The liver was somewhat enlarged; its lower border was felt 2 inches below the costal margin. Heart, faint mitral systolic murmur. No notable condition in the respiratory system. Blood examination showed: red cells 2,700,000 and white cells 2800. On Feb. 12th the red cells were 1,010,000, white cells 2200, and hæmoglobin 50 per cent.; on the 14th the figures were 1,587,500, 2000, and 60 per cent. respectively. On the 19th it was thought that the spleen was somewhat smaller, and as there was a little expectoration this was examined for tubercle bacilli but none were found. From time to time there seemed to be some slight variation in the size of the spleen. The blood count on May 3rd showed—red cells 2,600,000, white cells 5800, and hæmoglobin 50 per cent. The patient's condition was not satisfactory. He looked ill, was markedly anæmic, and appeared to be losing weight. His temperature was 103° or more at

night, the pulse varied from 112 to 128, and the respirations were generally 24. There was no evidence of free fluid in the abdomen.

Splenectomy was determined upon and was carried out on March 9th. An incision was made in the left semilunar line, and this was prolonged upwards, the seventh and eighth costal cartilages near the bony ribs being divided, thus giving considerable addition to the operating space. The abdominal cavity was free from fluid, there was much perisplenitis, and fibrous adhesions above attached the spleen to the under surface of the diaphragm and to the posterior abdominal wall. These adhesions were divided, several vessels were tied here, and the rest of the oozing was stopped by packing, whilst the splenic pedicle was ligatured in detail. The liver looked quite healthy except for a localised patch of perihepatitis on the upper surface of the right lobe; this area was not as large as the palm. The abdomen was closed, the divided rib cartilages being sutured with catgut. The spleen was found to weigh 3 lb. 5 oz. There was moderate shock, as the operation had been rather prolonged owing to the time spent in dividing the adhesions mentioned above, but half an hour after the operation the patient's condition was quite satisfactory.

The wound healed per primam, and at first it seemed as though the patient were going to make a complete and satisfactory recovery. The temperature fell to normal and remained so for five days; it then slowly began to rise again, and eventually returned almost to its old level, being on an average one degree lower than before the operation. The blood counts after operation were as follows:—

	Red cells.	White cells.	Hæmoglobin.
March 12th, 1914 ...	2,260,000 ...	8,000 ...	50 %
„ 14th, „ ...	2,250,000 ...	7,000 ...	60 %
„ 26th, „ ...	3,200,000 ...	7,000 ...	90 %
„ 31st, „ ...	3,690,000 ...	7,800 ...	90 %

On April 24th a number of carious teeth were extracted as the patient was not doing well, and it was thought wise to extirpate any possible infective focus. During the next few days he was losing condition, complained of discomfort in the abdomen, he had bronchitis on both sides of the chest, and he looked thinner and more ill. The abdomen began to swell, the legs became œdematous, the eyelids puffy, and there were some slight petechial spots observed. The patient's relatives getting discontented with his want of improvement took him home on May 16th. At that time he had a large ascitic collection, his legs were swollen, his temperature was about 103° at night, his pulse, always quick, ranged from 110 to 120, and he looked as though he were steadily losing ground. [I am unable to trace the patient.—G.B.]

The immediate improvement after splenectomy gave ground for believing that speedy restoration to health would ensue; the subsequent relapse was therefore the more disappointing. The improvement in temperature following operation suggested that the extirpation of the spleen had removed the great source of infection. The subsequent rise came on very gradually, and eventually the evening rise was as great as before the operation.

CASE 3.—A girl aged 6 was admitted under Sir Robert Simon on Jan. 21st, 1914, with a history that on the day previously she had vomited a pint of brownish fluid mixed with blood-clots. Six weeks before the child had had a severe hæmatemesis; she vomited several times at school and three times after she reached home. The previous history showed that she had been under treatment for four years for paralysis of the left arm, which had practically recovered. Scarlet fever and measles with bronchitis had attacked her in the first 18 months of life. The spleen was enlarged and quite mobile; its upper border reached to about three inches below the left costal arch. Blood examination showed red cells 3,300,000, white cells 26,000, and hæmoglobin 70 per cent. Further examination showed about the same amount of red cells and a diminishing white blood count, which eventually was as low as 7000. Later the white blood count rose to 18,000, the red cells being then 3,600,000 and the hæmoglobin 60 per cent. A general examination of the cavities revealed no other evidence of disease.

On Feb. 25th the child was remitted to me for splenectomy, with the diagnosis of early Banti's disease. Incision was made in the left semilunar line. The spleen was very sessile

to the stomach, and there were some adhesions below the pedicle, but these were easily ligatured piece by piece, and the operation of removal was a comparatively easy one. It was noted at the time that the liver presented an absolutely healthy appearance; it was perfectly smooth, its capsule was not thickened, and its colour was typical of a healthy liver; there was no ascitic fluid. Shock was moderately severe, and saline was given by the rectum with speedy improvement. The pulse, however, remained persistently quick; it had been about 100 before the operation. Immediately afterwards it was 176; it, however, dropped to below 120. There was persistent vomiting at first, and the patient was very restless. On the third day after the operation the pulse had quickened up to 160–180, the respirations were over 40, the temperature was as high as 105° F. for some hours, and the child died the next day.

The necropsy showed a satisfactory condition of the wound area; there was no peritonitis, and the only condition found to explain death was the state of the liver, the naked-eye appearance of which suggested delayed anæsthetic poisoning. The anæsthetic given was a mixture of ether and chloroform. The note of the examination of the liver by Dr. Logie, visiting pathologist, is as follows:—

Macroscopically the liver was enlarged and pale, its surface smooth and glossy. It cut easily and appeared to be in a state of acute hepatitis with cloudy degeneration. On microscopical examination the portal tracts showed well-marked cellular increase and in many cases marked proliferation of bile-ducts. The intralobular capillaries were dilated and well filled with blood. The vessels generally were engorged, and there were some small hæmorrhages. The parenchyma showed atrophy of the liver cells which were opaque, more or less necrotic, and all in a state of fatty degeneration. The nuclei were obscured and stained badly. The cells in the neighbourhood of the portal tracts showed some fatty infiltration. Those more remote were degenerate and in some parts quite destroyed.

Dr. A. G. Gibson has been kind enough to examine the spleens removed from these patients, and in one of them, the organ from Case 2, tubercle bacilli were found; in the other two cases no infective organisms were recognised. At the operation on Case 2 no tuberculous condition was recognised in the abdominal cavity, and the question arises whether the primary condition in the spleen was one of tubercle or whether this was superimposed on some pre-existing change.

CASE 4.—A male, aged 12, was admitted on April 25th, 1914, under Sir Robert Simon, complaining of pain in his ankles. The patient is one of a family of ten, of whom three died in infancy; the mother has had two miscarriages. The other members of the family are all healthy except one boy, aged 15, who is always rather pale and whose feet are "flat." The patient has had no previous illnesses. Three years ago last March he complained that the right foot was painful. His mother states that this condition first came on after the boy had been kicking a ball about. The foot was rested, but the pain continued, and he has never been able to use his foot since. He had his foot put up in a plaster-of-Paris case 15 months ago, and this case he wore for ten weeks. Six weeks ago his left foot also became painful, and since then he has not been able to use either foot. For the last fortnight his ankles have been tender and swollen.

Condition on admission.—A well-nourished and fairly intelligent boy unable to walk but can lie in bed comfortably. Both feet show well-marked pes planus. There is considerable œdema of both ankles. Abdomen: Full and rather flat; the spleen is large and palpable as low down as the umbilicus; a distinct notch can be felt. The liver is not palpable. There is a soft systolic murmur at the apex of the heart; this is not propagated towards the axilla. The murmur can also be heard to the left side of the sternum; the pulmonary second sound sharp and rather accentuated. Lungs normal. Two blood counts at intervals of a few days gave the following results: red cells 6,400,000 and 5,200,000, white cells 9600 and 8500, and hæmoglobin 90 per cent.

The condition of the ankles improved under treatment, and the patient was discharged as an out-patient, so that the condition of his spleen and his blood might be kept under observation.

CASE 5.—A male, aged 37, was admitted under me on May 1st, 1914, complaining of pain in the left side of the abdomen, duration six weeks. The father and mother are healthy; 2 sisters and 4 brothers alive and healthy. The patient is a moderate drinker and smoker. No previous illnesses, but he has occasionally suffered from epistaxis while bending over a basin washing himself. The patient attributes his present condition to straining himself while at work six weeks ago, when he did three days of extra heavy work; following this he had severe pain in his left side. There has been no vomiting of blood nor melaena.

Condition on admission.—A healthy looking man; complains of no pain at present nor of discomfort. Temperature and pulse normal. Abdomen: On palpation the spleen is found to be markedly enlarged, extending downwards almost to the umbilicus. It is of firm consistence, but the edge is not well marked except at the lower part; it is not tender. Liver not enlarged. Urine normal. Wassermann reaction negative. Blood examinations on three consecutive days: white cells, 16,000, 15,000, and 15,000; red cells, 4,400,000, 4,200,000, and 4,300,000; and haemoglobin, 80 per cent.

The patient was discharged, but was made an out-patient to be kept under observation.

In conclusion, may I remind you that the first case is a typical Banti's disease; the second is probably of the same nature, though we have positive evidence of a definite infection, tubercle. As to the third, in which the patient died with an acute hepatitis after operation, the haemorrhages suggest she too may have been an early example of this type. Cases 4 and 5 both have considerably enlarged spleens without blood changes, and their future course will be watched with interest. Case 5 was seen in December, 1914, when he appeared to be in good health; he had, however, found a lighter occupation. The splenic enlargement had not altered; no opportunity offered of examining his blood. At present it is impossible to determine the meaning of the splenomegaly of which they are the subjects.

Birmingham.

A CRITICAL STUDY OF THE BASIS OF ABDERHALDEN'S SERUM REACTION.

By W. E. BULLOCK, M.D. EDIN.,
IMPERIAL CANCER RESEARCH FUND.

THE great mass of literature dealing with the subject of this paper has been reviewed so recently by Abderhalden,¹ by Lange,² and others that it is unnecessary here to do more than to refer to special points and to emphasise the division of opinion as to the value of the reaction in the diagnosis of pregnancy and of disease. On the one hand, numerous writers³ support Abderhalden's results and conclusions completely; one observer declared it to be possible to distinguish between a gastric and a duodenal ulcer.⁴ On the other hand, a few writers⁵ on the subject totally deny the existence of specific protective ferments. Between these extremes there are some who partially confirm Abderhalden's work, and others who corroborate the experimental results but offer another explanation of them.⁶

The chief object of the work to be described was to test the reliability of the reaction as applied to the diagnosis of cancer. But before carrying out the routine empirical tests devised by Abderhalden the experimental results on which the whole method is based were examined. The experimental results claimed are briefly: 1. By injecting animals with solutions of sucrose, maltose, or other sugars strange to the economy of the animal employed

protective ferments are developed in the body which decompose the strange sugars and render them useful or at least innocuous to the animal. The evidence adduced that such ferments are produced is as follows. The blood serum of the normal animal is mixed with a solution of the sugar to be injected and the mixture examined with the polariscope; no alteration in the rotatory power of the solution takes place. When now the blood serum is obtained after the animal has received an injection of the sugar and is mixed with the sugar solution as before, the rotatory power of the solution gradually changes, indicating a splitting up of the sugar. 2. When an animal is injected with a foreign protein a similar phenomenon is said to be observed. Ferments are produced which are able to break up the protein into peptones and amino-acids, acting in this way in a protective capacity. The optical method was again employed, in this case allowing the blood serum to act upon solutions of peptones prepared from the protein used to inoculate the animal.

These are the essential experimental results, and they are extended by speculation and reasoning by analogy to practical ends. In the case of pregnancy, for example, it is said that since cells of the placental villi may break off and pass into the maternal blood stream, and as these cells are made up of proteins strange to the mother, protective ferments may be produced. But pregnancy may be diagnosed very early (in the first month) by the method, and it is obvious that the total weight of placental cells which may in this time get into the maternal blood stream is excessively small; it is, therefore, unreasonable to assume that this process can be solely responsible for the production of the protective ferments. Further, in some animals—e.g., the mare—the relationship of the placenta to the mother precludes the possibility of cells of the villi escaping into the blood stream. Hence a long theory, based on endless assumptions, of the relationship between the maternal and foetal metabolism is elaborated to show how protective ferments may be produced in the mother by simple products of the foetal metabolism.⁷

By a similar process of reasoning the experimental results already mentioned have been made a basis for researches on practically every subject within the scope of medical science. It is all the more important, therefore, to repeat and consider carefully the experiments by which the existence of specific protective ferments is considered to have been established.

The optical method of demonstrating the ferments does not, on the surface, appear to be very satisfactory. In the first place, the maximum rotations observed by Abderhalden are very small; in fact, only just outside the limits of error of the polariscope employed. In the second place, blood serum is chemically such a complex liquid that small changes in its optical activity are not necessarily significant. In this connexion it should be observed that Abderhalden states that blood serum may be kept indefinitely at 37° C. without any alteration in its optical activity, and it will be shown later that this statement comes into direct conflict with evidence obtained by the dialysis method. For these and other reasons the fundamental experiments with sugar as the substrate have not been repeated. In the last number but one of the *Journal of Biological Chemistry* Hogan has published a paper on the parenteral utilisation of disaccharides, in which he comes to the conclusion that his data "yield no evidence whatever

that any enzyme or any useful protective factor hitherto described is regularly developed in the animal body by the parenteral introduction of lactose or sucrose."

Turning now to the part of the experimental work in which albumins are used as the substrate, it is essential first to refer to the dialysis method which was employed to demonstrate the ferments. The technique adopted has been described in a previous paper.⁹ In order, however, to prevent any misunderstanding it is necessary to emphasise several parts of the process. In the first place asepticity was observed throughout. The dialysis sacs, elongated Petri dishes, and pipettes were sterilised in the autoclave and used immediately they were cool. The substrate was sterilised before use by boiling for several minutes in distilled water; the blood was drawn off aseptically into sterile centrifuge tubes, and after centrifuging the blood serum was pipetted off into fresh sterile tubes. The contents of the dialysis sacs and the distilled water in which they were placed were both covered with a layer of pure toluene. In testing the dialysate with ninhydrin 10 c.c. of the liquid, to which 0.2 c.c. of 1 per cent. ninhydrin solution had been added, was boiled over the Bunsen flame for one minute.

It is essential, according to Abderhalden, to use antigen and blood serum free of every trace of hæmoglobin. In experimental work with animals it is easy to obtain hæmoglobin-free serum. In order to do this the blood is collected quickly and centrifuged at 6000 revolutions per minute before coagulation occurs. The serum obtained is almost colourless and quite free of hæmoglobin. If the blood is allowed to coagulate before being centrifuged it is necessary to break up the clot, otherwise the serum will be mixed with fibrin in which red blood corpuscles are entangled. With human blood it is more difficult to obtain serum which is quite free of hæmoglobin owing to the fact that, as a rule, at least several hours elapse before the blood is centrifuged. The process by which the substrate may be obtained free of blood is fully described by Abderhalden in his book "Die Abwehrfermente."

Lange² states that in his experience the presence of hæmoglobin in the blood serum or in the substrate has no influence on the result of the reaction, and this opinion has been confirmed in the course of this work by numerous experiments. For example, a human placenta was taken and divided

TABLE I.

Sac.	Serum.	Substrate.	Ninhydrin test.	Sulphosalicylic acid test.
80	0.5 c.c.	HbO-free placenta.	-	-
81	1.0 "	"	-	-
71	1.5 "	"	+	-
74	0.5 "	Nil.	-	-
72	1.0 "	"	-	-
82	1.5 "	"	(+)	-
70	0.5 "	Bloody placenta.	-	-
83	1.0 "	"	-	-
75	1.5 "	"	+	-

into two parts, one of which was washed free of blood and prepared according to Abderhalden's directions, the other being boiled at once. Two specimens of placental substrate were thus obtained, the one white and free of hæmoglobin, the

other dark brown owing to the presence of altered blood. Blood was now obtained from a woman in labour and the experiment described in Table I. carried out.

The reverse experiment, in which hæmoglobin-free blood serum is obtained and divided into two parts, hæmoglobin being added to one part and both now incubated with and without placenta, was also performed. In this case also the presence of hæmoglobin exerted no influence on the reaction. Similar results were obtained with the blood and various substrates of the dog and rabbit. These experiments, though of the nature of preliminary investigations, were not carried out until a considerable proportion of the work described in this paper had been completed. Consequently in all the experiments to be described it is to be assumed that, unless stated to the contrary, the blood serum and substrate were hæmoglobin-free.

Abderhalden's experiments, on which the whole theory of protective ferments is based, were repeated in the following manner.

Half a dozen large healthy rabbits were taken, and the blood serum of each animal was allowed to act on coagulated egg albumin. The result of each experiment was negative, as the accompanying example shows. (Table II.)

TABLE II.

Sac.	Serum.	Saline.	Substrate.	Ninhydrin test.	Sulphosalicylic acid test.
81	1.0 c.c.	1.0 c.c.	Egg white.	-	-
82	1.5 "	0.5 "	"	+	-
80	2.0 "	0 "	"	++	(?)
76	1.0 "	1.0 c.c.	Nil.	-	-
73	1.5 "	0.5 "	"	+	-
77	2.0 "	0 "	"	++	(?)

Thus the serum is without action on coagulated egg white. Following Abderhalden's method of procedure the rabbits were now injected intravenously (the second injection two days after the first, and the third one day after the second) three times with egg albumin diluted with normal saline. The dose administered on each occasion was 2 c.c. of a 50 per cent. solution of albumin. The rabbits were bled as follows: 2 on the fourth day, 2 on the fifth, and 2 on the sixth day after the last injection. The sera obtained were tested against coagulated egg white, and in each case the result was negative. The accompanying table (No. III.) is typical:—

TABLE III.

Sac.	Serum.	Substrate.	Ninhydrin test.	Sulphosalicylic acid test.
76	0.5 c.c. rabbit No. 1	Egg white.	-	-
73	0.75 " " "	"	(+)	-
72	1.0 " " "	"	+	-
79	0.5 " " "	Nil.	-	-
83	0.75 " " "	"	(+)	-
78	1.0 " " "	"	+	-
71	0.5 c.c. rabbit No. 2	Egg white.	-	-
75	0.75 " " "	"	(+)	-
82	1.0 " " "	"	+	-
77	0.5 " " "	Nil.	-	-
80	0.75 " " "	"	(+)	-
81	1.0 " " "	"	+	-

A similar series of experiments was carried out, inoculating other sets of rabbits subcutaneously and intraperitoneally, and with the same results. In no case was any evidence obtained of the production of a protective ferment. The blood serum

of the inoculated rabbits gave the precipitin reaction against solutions of egg white, and in the three cases tested anaphylactic shock was induced.

It will be noticed that in the tests with serum alone a positive ninhydrin reaction, progressively stronger with increasing doses of serum, is obtained. This result may be due either to the presence of amino-acids in normal rabbit blood or to a production of these substances by an autolytic enzyme. Abderhalden has demonstrated that amino-acids in minute amounts are normally present in blood serum.¹⁰ Working with very large quantities of blood—e.g., 50–100 litres—he was able to isolate glycocoll, alamin, prolin, leucin, &c., but owing to the energetic chemical methods employed there is a possibility that the amino-acids obtained were produced by the reagents used in the process. The question was therefore investigated by a new and simple method.

20 c.c. of blood were drawn from a rabbit's ear vein and rapidly centrifuged in order to obtain clear serum. The serum was pipetted off into a strong large sterile test-tube, which was immediately immersed in boiling water and kept there for 20 minutes in order to inactivate any enzymes which may be present, and to kill any organisms which may have contaminated the serum. The serum clotted, and a clear watery fluid separated. This fluid was pipetted off into sterile test-tubes, and again heated and then placed in two sacs and dialysed for 18 hours against 20 c.c. of distilled water in the usual way. The dialysates reacted faintly with ninhydrin and were negative to sulphosalicylic acid; it was therefore concluded that blood serum does normally contain amino-acids. The experiment was repeated twice with rabbit's serum and with dog's serum with the same results.

In order to determine whether the blood content of amino-acids is increased during digestion an experiment was carried out in which rabbits which had fasted for 24 hours, and rabbits which had received a meal of oats and green stuff within three hours of the experiment, were bled and equal volumes of the serum obtained were treated in the manner already indicated. The dialysate from the fasting animal's blood serum gave a slightly fainter tint than the other dialysate, and from this result it is probable, considering the quantities of serum used, that any increase in the amino-acid content of the blood after a meal is too small to be detected in 2 c.c. of serum. It is possible, of course, that in an animal like the rabbit, with a great length of intestine and a large cæcum almost invariably loaded with partially digested food, the difference between a fasting animal and one in a state of digestion is very small. It was very noticeable that the dialysate from the serum of the animal in a state of digestion gave a temporary red colour when boiled with ninhydrin, this being due, probably, to glucose.

A further experiment was made to determine the influence of a previous bleeding.

An animal was bled, and the serum obtained was sterilised as before and the clear watery fluid pipetted off, and after being heated placed in the ice chest. Four hours later the animal was again bled, and the same volume of serum obtained and heated in the water bath. The clear watery fluid was pipetted off, heated, cooled in the ice chest, and 5 c.c. placed in a dialysis sac and dialysed against 20 c.c. of distilled water. In the same way 5 c.c. of the watery fluid from the first bleeding was dialysed against 20 c.c. of distilled water. After 18 hours the dialysates were tested with ninhydrin, and the reaction obtained with the dialysate from the serum of the second bleeding was much deeper than the other.

It may be concluded that amino-acids are washed from the tissues by the fluids which flow into the vascular system after a bleeding. These results do

not preclude the possibility of a ferment action taking place in normal unheated blood serum. Indeed, it was observed that the depth of the ninhydrin reactions with fluid from 10 c.c. of serum was not more than equal to that usually obtained in an ordinary experiment with 1 c.c. of serum. In order to test for an enzyme action the following experiments were made.

An animal was bled aseptically, at least 30 c.c. of blood being taken, the blood immediately centrifuged, and the clear, watery, hæmoglobin-free serum was pipetted off into a sterile test tube. Into each of half-a-dozen or more sterile dialysis sacs 2 c.c. of blood serum was placed, and the sacs dialysed at different temperatures for 18 hours against distilled water. The temperatures chosen were as nearly as possible as follows: 5° (in chest), 20°, 30°, 40°, 50°, and 60° C. It was not always possible to set the baths at exactly these temperatures, but practically the temperatures employed were round about those stated. The baths used maintain the temperatures at which they are set to within half a degree during the 18 hours of the experiment.

The dialysates were tested in the usual way with ninhydrin, and the tints obtained gradually increased up to 40° C. and then diminished at the higher temperatures. The maximum was, in every experiment but one, round about 40° C. The results were compared by the method of dilution already described,⁹ and the dilution numbers plotted against the temperatures as shown in the curves below. The following are examples of the experiments:—

1. A dog was bled and the serum obtained by centrifugalisation. In order to be quite certain of the sterility of the serum it was filtered through a Berkefeld filter. The accompanying experiment was carried out (Table IV.). The

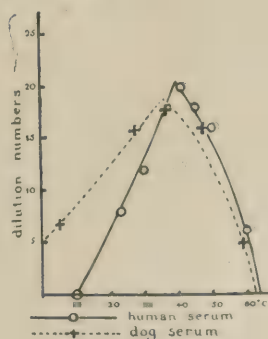
TABLE IV.

Sac.	Serum.	Temperature of incubation.	Duration of incubation.	Ninhydrin tests.	Dilution numbers.	S.S.A. test.
2	2 c.c.	4.5°	18 hours.	+	0.7 c.c.	—
32	"	27.1°	"	++	1.6 "	—
1	"	36°	"	+++	1.8 "	—
13	"	47°	"	++	1.65 "	—
5	"	52°	"	+(+)	1.4 "	—
12	"	58°	"	+	0.5 "	—

S.S.A. test = sulphosalicylic acid test.

curve for the dilution numbers is given in Fig. 1. From this experiment, in which in addition to using toluene every precaution was taken to exclude organisms, it is clear that an autolytic enzyme has been active.

FIG. 1.



The dotted line shows the gradation in the depth of the ninhydrin reaction obtained with dog serum incubated at different temperatures. The dilution numbers give the volume of water added to 1 c.c. to bring the tint of the liquid to the degree of faintness of the weakest reaction.

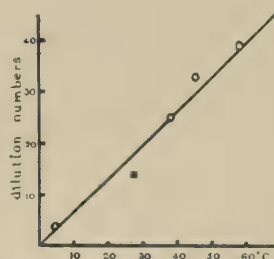
2. The curve (Fig. 2) for the dialysis of a solution of peptone was obtained by dissolving 0.4 g. of Witte's peptone in 20 c. c. of distilled water, and dialysing at different

temperatures 2 c.c. of the solution against 20 c.c. of water thus (Table V.):—

TABLE V.

Sac.	Temperature.	Duration of dialysis.	Ninhydrin test.	Dilution numbers.
13	4.5°	18 hours.	+	0.3 c.c.
5	27°	"	++	1.4 "
2	38°	"	+++	2.5 "
32	45°	"	++++	3.3 "
12	55°	"	+++++	3.5 "
1	58°	"	+++++	3.9 "

FIG. 2.



Shows the effect of increasing temperatures on the dialysis of
■ dilute solution of Witte's peptone.

3. A bitch, three weeks pregnant, and a dog were bled and sera obtained. Aseptic precautions were taken, but the serum was not passed through a Berkefeld filter. The following tests were made (Table VI.). The curve is shown in Fig. 3.

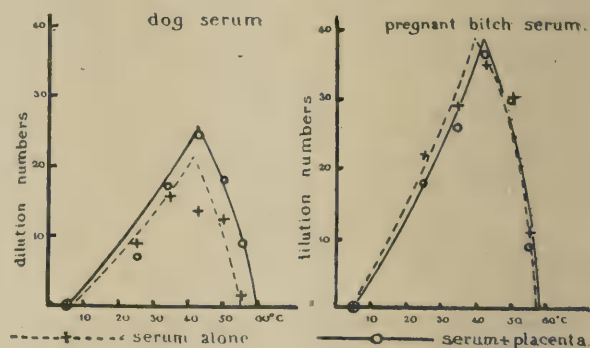
TABLE VI.

Sac.	Serum.	Substrate.	Temperature.	Ninhydrin test.	Dilution numbers.	S.S.A. test.
16	2 c.c. dog serum.	Dog placenta.	5° C.	(+)	0 c.c.	—
112	"	"	25°	+	0.7 "	—
42	"	"	34.5°	++	1.7 "	—
20	"	"	42.5°	+++	2.4 "	(+)
27	"	"	50°	+++	1.8 "	—
4	"	"	55°	+	0.2 "	—
7	"	Nil.	5°	(+)	0 "	(+)
117	"	"	25°	+	0.8 "	—
43	"	"	34.5°	++	1.6 "	—
116	"	"	42.5°	++	1.4 "	—
113	"	"	50°	++	1.3 "	—
115	"	"	55°	+	0.2 "	—
24	2 c.c. bitch serum.	Dog placenta.	5°	(+)	0 "	—
25	"	"	25°	++	1.8 "	—
28	"	"	34.5°	+++	2.6 "	—
9	"	"	42.5°	++++	3.7 "	—
1	"	"	50°	+++	3.0 "	—
40	"	"	55°	+	0.9 "	—
26	"	Nil.	5°	(+)	0 "	—
36	"	"	25°	++	2.2 "	—
12	"	"	34.5°	+++	2.9 "	—
13	"	"	42.5°	++++	3.5 "	(+)
5	"	"	50°	+++	3.0 "	—
2	"	"	55°	+(+)	1.1 "	—

It will be noticed from the curves (Fig. 3) that:
(1) There is no evidence of digestion of the substrate either by the serum from the pregnant bitch or by that from the dog; (2) the serum from the bitch yielded a greater amount of amino-acids than

that from the dog; and (3) the curve for dog serum alone is distinctly more irregular and rises to a smaller height than the curve for dog serum plus placenta. This is due to the fact, as has been shown in the previous paper,⁹ that sacs 117, 116, 113, and 115 were made at a later date than the sacs used in the rest of the experiments (except sac 112), and had been autoclaved fewer times. In

FIG. 3.



Showing that no degradation of placental tissue occurs either with dog or with pregnant bitch serum.

connexion with (2) above, it may be stated that my colleague, Dr. Compton, estimated the content in the ferment maltase of both these sera and found a difference corresponding to that noted above. In view of the findings of Bertrand and Compton¹¹ the agreement between the maltase and proteolytic ferments in the two lots of serum is of considerable interest.

4. Blood serum of rabbits was examined in the same way with similar results. A normal Belgian hare was starved for 26 hours and then bled; the blood was centrifuged and the clear, hæmoglobin-free serum pipetted off. The serum was divided into two parts, to one of which 0.5 c.c. of hæmolyzed red blood corpuscles was added. The sera were now filtered through separate Berkefeld candles and the following experiment carried out (Table VII.).

TABLE VII.

Sac.	Serum.	Temperature.	Ninhydrin test.	S.S.A. test.
78	1 c.c. of HbO-free.	13.5°	—	—
80	"	28.5°	++	—
83	"	38.5°	+	—
79	"	41.0°	—	—
73	"	50.5°	—	—
82	"	61.0°	—	—
76	1 c.c. containing HbO.	13.5°	—	—
81	"	28.5°	++	—
77	"	38.5°	+	—
74	"	41.0°	—	—
72	"	50.5°	—	—
75	"	61.0°	—	—

It was not possible to obtain dilution numbers. The optimum temperature is here about 30° C.

5. About 40 c.c. of blood was drawn from the median cephalic vein of a healthy man (B.E.G.R.) and hæmoglobin-free, yellowish serum obtained. This was dialysed in lots of 2 c.c. against water at different temperatures for 18 hours (Table VIII.). Fig. 1 shows the curve. The double dose of ninhydrin is required owing to the fact that human serum yields, dose for dose, a smaller amount of

dialysable ninhydrin-reacting substances than the serum of the dog, the rabbit, the guinea-pig, or rat.

TABLE VIII.

Sac.	Serum.	Temperature.	Ninhydrin test. (Dose 0.4 c.c.)	Dilution numbers.	S.S.A. test.
93	2 c.c.	10°	+	0 c.c.	-
84	"	23°	++	0.8 "	-
85	"	30°	+++	1.2 "	-
90	"	41°	++++	2.0 "	-
83	"	45°	+++ (+)	1.8 "	-
86	"	50°	+++	1.6 "	-
97	"	60°	++	0.6 "	-

These results enable one to conclude that an autolytic ferment exists in the blood serum of rabbits, dogs, and human beings, and that it is responsible for some of the amino-acids indicated by the ninhydrin test. It does not follow, however, that it is impossible to diagnose pregnancy by Abderhalden's method. This requires to be tested directly, and for this purpose it was determined to use animal material owing to the ease with which blood serum can be obtained and male controls set up. Rabbits and dogs were tested. Blood was obtained from female animals both during the early days of pregnancy and immediately before or during delivery. In every case blood serum from a male was used as control. Altogether over 20 tests were made, and the results obtained were concordant and invariably negative, as the following examples illustrate:

A pregnant rabbit and a buck were starved 18 hours and then bled. The serum was filtered through unglazed porcelain and the following tests made (Table IX.):—

TABLE IX.

Sac.	Serum.	Substrate.	Ninhydrin test.	S.S.A. test.
21	½ c.c. doe.	Nil.	-	-
2	1 " "	"	-	-
32	1½ " "	"	+	-
12	2 " "	"	++	-
5	½ " "	Rabbit placenta.	-	-
4	1 " "	"	-	-
20	1½ " "	"	+	-
27	2 " "	"	++	-
13	½ c.c. buck.	Nil.	-	-
16	1 " "	"	-	-
14	1½ " "	"	+	-
43	2 " "	"	++	-
7	½ " "	Rabbit placenta.	-	-
22	1 " "	"	-	-
42	1½ " "	"	+	-
25	2 " "	"	++	-

Similar experiments, in which, however, the blood serum was not filtered, gave the same result. An example of a test with dog serum and dog placenta has already been given.

The difficulty of obtaining blood serum from human patients for the purpose of experimental work is very great, and renders it practically impossible to test the method as thoroughly as has been done for animals. It was, however, essential to make some experiments, and this was rendered possible by the kindness of Dr. Kettle, of St. Mary's Hospital, who procured four samples of blood, obtained during delivery. As a control to these tests in one experiment the blood serum of a

healthy adult male was used. In each test (including that with serum from male) it was found that the ninhydrin reaction of the dialysates of serum plus placenta was deeper than in the case of the dialysates from serum alone. The results here are therefore quite different from those already detailed above. The serum (from male and female) does break down placenta protein or in some way liberate amino-acids. But since this result had already been obtained in connexion with tests in cases of cancer in animals to be described later, it was decided, in spite of the small number of cases examined, not to continue the work.

The following example is typical. Blood obtained during labour was centrifuged and the serum, yellow in colour but free of hæmoglobin, was pipetted off (Table X.).

TABLE X.

Sac.	Serum.	Substrate.	Ninhydrin test.	S.S.A. test.
85	1 c.c. from woman on delivery.	Human placenta.	-	-
86	2 " " "	"	++	-
84	1 " " "	Nil.	-	-
100	2 " " "	"	(+)	-
98	1 c.c. male serum.	Human placenta.	-	-
90	2 " "	"	++	-
97	1 " "	Nil.	-	-
84	2 " "	"	(+)	-

In the published work dealing with the diagnosis of cancer by this method human material exclusively has been used. Here, again, the difficulty of providing sufficient controls has not been met. Where animal material is employed the difficulty does not arise. The following tables illustrate the results obtained in numerous experiments with rats, guinea-pigs, and rabbits.

1. Nine rats bearing tumours—rat tumour 9—which were growing progressively were starved for 20 hours and then bled and the blood centrifuged. The serum obtained was free of hæmoglobin, pale yellow in colour and clear. (Table XI.)

TABLE XI.

Sac.	Serum.	Substrate.	Ninhydrin test.	S.S.A. test.
116	0.65 c.c.	Rat tumour 9.	(+)	-
117	1.15 "	"	+++	-
113	1.55 "	"	++++	-
114	0.65 "	Nil.	?	-
112	1.15 "	"	+	-
115	1.55 "	"	++	-

Incubated 20 hours.

2. Five normal rats were starved for 20 hours, bled, and serum obtained (Table XII.). Incubated 20½ hours. The

TABLE XII.

Sac.	Serum.	Substrate.	Ninhydrin test.	S.S.A. test.
116	1.0 c.c.	Rat tumour 9	++	-
117	1.5 "	"	++++	-
113	2.0 "	"	+++++	-
114	1.0 "	Nil.	+	-
112	1.5 "	"	++	-
115	2.0 "	"	+++	-

same dialysing sacs were used as in the preceding experiment and in the same order.

3. Two rabbits, one a normal buck and the second a doe with an absorbing tumour, decreasing in 49 days from a size of $2\frac{3}{4} \times 2\frac{1}{2}$ inches to a size of $1 \times 1\frac{1}{2}$ inches at the time of the experiment, were starved for 18 hours and then bled. The sera were both free of hæmoglobin; the normal serum was clear, that obtained from the tumour-bearing animal was opalescent. (Table XIII.) It will be observed

TABLE XIII.

Sac.	Serum.	Saline.	Substrate.	Ninhydrin test.	S.S.A. test.
80	0.5 c.c. tumour animal.	1.0 c.c.	Rabbit tumour.	(+)	-
76	0.5 " " "	1.0 "	" "	(+)	-
70	1.0 " " "	0.5 "	" "	++(+)	-
82	1.5 " " "	0 "	" "	++++(+)	-
83	0.5 " " "	1.0 "	Nil.	-	-
74	1.0 " " "	0.5 "	" "	++	-
73	1.5 " " "	0 "	" "	++++	-
81	0.5 c.c. normal animal.	1.0 c.c.	Rabbit tumour.	-	-
75	1.0 " " "	0.5 "	" "	+	-
79	1.5 " " "	0 "	" "	++	-
71	0.5 " " "	1.0 "	Nil.	-	-
72	1.0 " " "	0.5 "	" "	(+)	-
77	1.5 " " "	0 "	" "	+	-

that though the dialysates from tumour serum reacted to ninhydrin more strongly than the dialysates of normal serum, yet the differences between serum alone and serum plus substrate corresponded in the two sets of the experiment.

4. A guinea-pig tumour was washed free of hæmoglobin until the tissue was white, and was then extracted with chloroform to remove the large amount of fat usually found in this tumour. The product was then boiled in distilled water acidified with acetic acid, and again in distilled water until the water failed to react with ninhydrin. A guinea-pig bearing a tumour and a normal guinea-pig were bled from the heart and sera obtained. The animals were not previously starved. (Table XIV.) In this experiment

TABLE XIV.

Sac.	Serum.	Substrate.	Saline.	Ninhydrin test.	S.S.A. test.
72	0.5 c.c. normal animal.	Guinea-pig tumour.	0.5 c.c.	-	-
74	0.75 " " "	" "	0.25 "	++	-
71	1.0 " " "	" "	0	++++	-
83	0.5 " " "	Nil.	0.5 c.c.	-	-
73	0.75 " " "	" "	0.25 "	-	-
80	1.0 " " "	" "	0	+	-
76	0.5 c.c. tumour animal.	Guinea-pig tumour.	0.5 c.c.	-	-
82	0.75 " " "	" "	0.25 "	++	-
70	1.0 " " "	" "	0	++	-
77	0.5 " " "	Nil.	0.5 c.c.	-	-
79	0.75 " " "	" "	0.25 "	-	-
75	1.0 " " "	" "	0	+	-

Incubated 21 hours.

the reverse of what was shown in the last experiment is obtained; the serum of the normal animal produced a greater ninhydrin reaction than the tumour serum, but again in both sets of tests there is an indication of a degradation of tumour protein or of some physical action liberating amino-acids.

5. Two guinea-pigs were inoculated in the right axilla with an emulsion of mouse tumour 63; the dose in each

case was 0.5 c.c. Sixteen days later these animals and two normal guinea-pigs were bled, and the sera allowed to act on mouse tumour 63 as substrate as indicated. (Table XV.)

TABLE XV.

Sac.	Serum.	Substrate.	Ninhydrin test.	S.S.A. test.
4	0.5 c.c. immune serum.	Tumour 63.	-	-
5	1.0 " " "	" "	+++	-
24	0.5 " " "	Nil.	-	-
40	1.0 " " "	" "	++	-
20	0.5 c.c. normal serum.	Tumour 63.	(+)	-
1	1.0 " " "	" "	+++	-
21	0.5 " " "	Nil.	-	-
9	1.0 " " "	" "	+(+)	-

Incubated 19 hours.

Up to the present it has not been possible to obtain materials necessary to carry out similar experiments in cases of cancer in the human subject.

Results and Conclusions.

1. It was found impossible to cause the production in rabbits of a ferment which digests coagulated egg white by the injection subcutaneously, intraperitoneally, or intravenously of raw egg white.

2. A minute quantity of amino-acids is present in 10 c.c. of blood serum of rabbits and dogs, and it was found (in rabbits) that after a bleeding these substances are increased in amount.

3. An autolytic ferment is found in the blood serum of rabbits, dogs, and in human serum.

4. The serum of the pregnant rabbit is unable to break down rabbit placenta, and the serum of the pregnant bitch is unable to break down dog placenta. Human blood serum from the pregnant female and from the healthy male, incubated with human placenta, produced by chemical or physical action amino-acids.

5. Rat blood serum ("normal" and "tumour") breaks down rat tumour (J. R. S. & Rat 9). Guinea-pig serum ("normal" and "tumour") breaks down guinea-pig tumour and mouse tumour 63. The blood serum of the guinea-pig was not rendered more active in this property by a previous inoculation of the animal with mouse tumour 63.

The method devised by Abderhalden, even with the technical improvements described, is thus seen to be inadequate to distinguish normal from pregnant or cancerous sera. The fundamental experiments adduced by Abderhalden do not, on repetition, give the results stated by him, and a proteolytic ferment normally present in the serum of mammals acting on tissue substrates of varying lability, prepared in accordance with his directions, in all probability accounts for his results and their confirmation by others.

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ELECTROTHERAPY AT A BASE HOSPITAL.

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VERY little attention has hitherto been drawn to the value of electrotherapy in the treatment of the sick and wounded in war time. The only published references to this subject of which I am aware occur in a paper, "Le Service de Physiothérapie de l'Hôpital Militaire du Dey à Alger," by Dr. Hertz, Médecin Major de 1^{re} Classe,¹ and in a paper entitled "La Physiothérapie des Blessés de Guerre," by M. Miramond de Laroquette.² Both these papers are concerned with the work at the military base hospital at Dey in Algeria, where a department of physiotherapy had been established to meet the needs of the wounded soldiers during the war in Morocco. Before reaching this department the primary lesions of the soldiers had been cured, and the department was solely concerned with the secondary troubles, often very severe, such as: paresis and paralysis following on nerve lesions, 16; ankylosis or articular stiffness, 43; functional incapacity or atrophy, 3; total, 62.

In the 41 cases in which a definite result was obtained there was a complete cure in 51 per cent., marked improvement in 24 per cent., and no result in 24 per cent. Of the remaining cases 8 were invalided out of the service and 3 were placed on half pay. The writers claim that without the aid of physiotherapy the number of those permanently disabled and in receipt of State pensions would undoubtedly have been much increased. The methods employed were, in the cases of neuritis and wasting, the continuous current of high intensity with long séances, and sometimes in addition a current of rhythmically interrupted galvanism. For the arthritic lesions radiant heat and mechanotherapy were used. The chronic effusions were treated by radiotherapy, in pastille doses, every fortnight.

At the Radcliffe Infirmary, which forms one of the subsidiary hospitals attached to the Third Southern General Hospital, a very complete electrical installation has recently been added. The installation comprises Nagelschmidt's diathermy apparatus with a high-frequency attachment, a powerful American Baker 8-16 plate static machine, a Bergonié apparatus for obtaining electrically provoked exercises, a 500 candle-power leucodescent lamp for radiant heat, an electric light bath of 48 incandescent and four arc lamps, a Krohmeyer mercury vapour quartz lamp, two pantostats, and batteries, &c., for rhythmically interrupted and reversed currents.

Of the 78 cases which have already been electrically treated 31 have been cases of frost-bite. Of these 24 have been discharged cured and 7 remain under treatment. (See Table). It is not suggested that these cures would not have occurred under other forms of treatment, or perhaps without any treatment, or even in spite of treatment. But it is claimed that by adopting electrical methods the most acute pain is speedily relieved, the stasis and swelling of the affected parts are reduced, the vitality of the tissues is increased, and in the necrotic cases the tissues are kept dry and aseptic,

whilst separation is hastened by the increased hyperæmia which follows the application of the treatment.

In frost-bite cases the form of electrical treatment is selected on the following principles. If the pain is very severe diathermy is found to give the best results. When the pain is very acute the treatment is commenced as soon as possible after the patient's arrival at the hospital, and in the more severe cases two treatments are given daily. In cases of slight frost-bite electrical treatment is not

Table showing the Number of Patients Treated, the Methods of Treatment adopted, and the Results to the Middle of January.

Nature of complaint and number of cases.	Method of treatment.					Result.			
	Diathermy.	Morton wave current.	Static breeze.	High-frequency vacuum tube.	Galvanism (continuous, interrupted, and reversed current), faradism, ionisation, radiant heat.	Cured.	Improved.	Still under treatment.	Unimproved.
Frost-bite 31	20	1	12	7	1	24	—	7	—
Nerve lesions 22	11	2	3	2	11	7	5	7	3
Rheumatism, sciatica, neuritis 10	3	5	—	—	2	3	2	4	1
Stiff joints, synovitis 8	1	6	1	—	3	3	1	4	—
Strain of muscles 4	2	2	—	—	—	3	1	—	—
Eczema of leg... .. 1	—	—	1	—	—	1	—	—	—
Gout 1	—	—	—	—	1	—	1	—	—
Sycosis menti... .. 1	—	—	1	—	—	1	—	—	—
Totals 78	37	16	18	9	18	42	10	22	4

usually given, any slight pain which may exist usually subsiding with one or two days' rest and warmth; occasionally, however, cases with no pain on admission develop a neuritis of the feet requiring electrical treatment a few days after admission. Cases which have lost sensation to heat are not suitable for diathermy, as there is a risk of the heat blistering them.

The following are the notes on a case in which diathermy was given in consequence of the pain disturbing the patient's sleep:—

CASE 1.—The patient was admitted on Dec. 17th, 1914. Was frost-bitten about the end of November, whilst on active service in the trenches. He stayed in the trenches till Dec. 11th, when he was unable to endure the pain in his feet and reported sick. The pain had continued every night, disturbing his sleep. On the night of Dec. 18th there was considerable pain. Dec. 19th: Diathermy 10 by 5 c.m. electrodes, 0.9 ampère, for 10 minutes yesterday. There has been no pain since treatment, and the patient had good night. Dec. 20th: Diathermy repeated on the 19th. There is now no pain in the feet. The patient can walk well and is recommended for sick furlough.

Captain C. A. Coventon has kindly supplied me with the following notes of two of his cases which were treated by diathermy for severe pain in the feet following frost-bite.

CASE 2.—The patient was admitted on Dec. 31st, 1914. Frost-bite in both feet; very painful, preventing sleep. On Jan. 1st, 1915, he was admitted to Radcliffe Infirmary for electrical treatment. On the 5th there was much less pain, he slept well, and there was more movement. On the 6th he continued to improve, was now quite well, and was discharged to sick furlough. The electrical treatment in this case seemed to cause immediate improvement, the pain ceased, and convalescence went on uninterruptedly.

¹ Archives de l'Electricité Médicale, March 18th, 1913.

² A paper read before the Congress of the French Association for the Advancement of Science held at Tunis in 1913.

CASE 3.—Frost-bite in both feet. The patient was admitted on Dec. 31st, 1914, with great pain necessitating morphia; there was no great discolouration and very slight movement. On Jan. 3rd, 1915, he was admitted to Radcliffe Infirmary for treatment by Captain Turrell. On the 5th the pain was much less, he slept through the night, and had much more movement in the toes. On the 12th he continued to improve. On the 14th he was discharged to sick furlough. The remarks on the improvement of the other case equally apply to this one.

The so-called cases of trench pain or trench feet usually have no tissue destruction, no blebs, and not even any discolouration of the skin; they would appear to be due to acute neuritis of the feet excited by cold and exposure. The most acutely painful case we have treated was of this nature. The day after admission the patient was writhing in bed with agonising pain, his hands clenched, his face buried in the pillows, his face and feet covered with perspiration, there were no physical signs of any lesion. This patient was the only one we have treated who derived little or no benefit from diathermy; on the third day of his treatment the diathermy apparatus was temporarily out of order, so he was treated by the static breeze instead. He was immediately relieved, slept the whole of that night, and only had a slight recurrence of pain on the following day and this was relieved by a repetition of the treatment. The patient had no further relapse, and two days afterwards was walking about the ward. The other patients who have been treated by both methods have always stated that their pain has been more relieved by the diathermy than by the static. This patient was suffering from considerable nervous exhaustion, and probably a great part of the benefit he derived from the static breeze was due to the constitutional effect of this treatment.

Cases with no ulceration, but with blebs, and cases with loss of sensation to heat, we find respond best to the high-frequency vacuum tube. It is remarkable how quickly the blebs dry up under this form of treatment. Where there is ulceration and necrosis the static breeze with the patient negatively charged is the best form of treatment. The worst case of frost-bite which has been admitted to the hospital has been under treatment for about six weeks by this method. On admission the toes were hard, dry, and withered, the sole of the foot was covered by a large black bleb, on the dorsum of the foot a line of demarcation was already appearing about one inch from the base of the toes. The static breeze has been applied daily, and pain, whenever it has occurred, has been relieved by the treatment. The toes are now separating at the metatarso-phalangeal articulation. The granulations are very healthy in appearance, the wound has kept perfectly aseptic, and only on one occasion has the temperature risen to 99° F. The patient's general health has much improved. The oedema and induration on the dorsum of the foot have nearly disappeared.

The rationale of the static breeze in the treatment of frost-bite is apparent from the following description by Dr. Benham Snow of the therapeutic action of this modality: "The effect upon local stasis where swelling and induration are present is to generally soften the tissues. This is due to the action of the discharges producing recurrent contractions of the tissues, thereby inducing an onward movement of the blood current through the vessels. Over superficial oedema and where ecchymosis is present the effect of these applications systematically applied is remarkable in

its results To ulcerated surfaces the application of these modalities is one of the most valuable in therapeutics. Applied over the indurated margin, where it has a positive effect in relieving stasis, it proves to be of the greatest value for the relief of those conditions. The circulation is restored throughout the zone of induration, which surrounds the ulcer, when a reparative process is immediately instituted."³

Several patients have been treated on account of very severe pain in the extremities following crushing or partial division of a nerve. It has been found that diathermy has always afforded marked relief; after the first treatment the pain is usually absent for four or five hours, and subsequent treatments result in a longer period of relief. In treating patients with very severe pain two applications of diathermy are administered daily, the second one being given as late as possible in the evening. Treated in this way patients who previously had only experienced brief relief from hypodermics of morphia sleep through the night without pain. Diathermy does not appear materially to shorten the period of convalescence in these cases, nor does it prevent the occurrence of trophic changes in the skin. In order to keep the patient free from pain the treatment has to be continued in some cases for two or three months. Often when the treatment is omitted for one day the patients complain that they have missed it and have had more pain.

In cases of nerve degeneration, if the mischief is slight, and the muscles react to faradism, the rhythmically reversed faradic current is used. Where the faradic reaction is lost, when there is no pain associated with the lesion, rhythmically reversed galvanism is used; when pain exists rhythmically interrupted galvanism is selected. For testing electrical reactions the condenser method is used and is found to be not only much quicker, but also to give more information in regard to the degree of nerve degeneration than the faradic and galvanic methods.

Sprains of muscles and synovitis of joints usually yield readily to the Morton wave static current, and the patient's stay in hospital is generally materially shortened by this treatment. The Morton wave current, either alone or in association with ionic medication, is used for the treatment of stiff joints.

The following interesting case of "spinal concussion" speedily yielded to the persuasive influence of Bergonié's machine for electrically provoked exercises. The rapid cure will probably be attributed to electrical suggestion, but in view of the vigour and amplitude of the muscular contractions excited by this apparatus "electrical demonstration" might be a better term.

CASE 4.—The patient, whilst serving at the front, was driving an ammunition wagon when a shell exploded under the wagon, killing one horse and severely wounding the other. The patient states that he was blown several feet into the air, and on falling dragged himself to the shelter of a hedge, where he remained all night. The following morning he could neither walk nor stand. On being taken to the medical officer the patient states that pins were pushed into both his legs without producing any sensation. On admission to the Third Southern General Hospital the patient appeared to be unable to draw up or move his legs or to stand up. The reflexes, sensation, and electrical reactions were normal. After a few days' rest in bed the patient could walk a few steps with assistance; he was then transferred to the Radcliffe Infirmary for electrical treatment. He was there treated

³ Benham Snow High Potential and High Frequency Currents.

by electrically provoked exercise to the back (positive) and seat and thighs (negative). After the treatment the patient walked back to the ward by leaning on his wheeled chair; on the following day he walked to the electrical department with the aid of sticks, and after a repetition of the exercises he walked without assistance. On the third day the Morton wave current was applied to the back to clear up any remaining stiffness. No further treatment was required, and the patient was discharged on sick furlough.

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FEAR AND DISEASE.

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TOXIN formation and the physical effect of toxins on the organism have been investigated both bacteriologically and dietetically as the cause of alimentary toxæmia, but we are still searching for that fundamental factor which allows the toxins to enter the blood in excessive quantities. I wish in this paper to put forward a hypothesis showing that this fundamental factor is, either partly or entirely, the direct result of a mental state. Dr. E. Mellanby raises this question when he says¹:—

The key to the situation is not held by a consideration of the bacteria of the intestine, nor of the chemical end-products of bacterial action, but rather by knowledge as to the normal methods of intestinal absorption, and more particularly of *the mechanism which prevents the passage of toxic substances across the mucous membrane into the blood-stream.* [Italics are mine.] The important question is: What is the cause in acute intestinal disturbance which brings about the breakdown of the defensive mechanism and allows the entry into the blood stream of toxic substances?

Dr. Murray Leslie seems to emphasise the same question when he says²:—

It seems to me that sufficient stress has not been laid by previous speakers on the first factor—namely, the power of resistance on the part of the individual. It is true that reference has been made more than once to the fact that there is no necessary relationship between the amount of stasis and the degree of toxæmia. It is a matter of daily clinical observation that some persons can remain constipated for days, and even weeks, without apparently suffering any ill-effects, while in other instances the missing of the usual after-breakfast evacuation is invariably followed by headache, malaise, and inability for physical or mental exertion. Habit-tolerance, important though it may be, does not altogether account for such phenomena. There seem undoubtedly to be individual idiosyncrasies in respect of liability or resistance to toxæmia. The importance of the personal factor is exemplified by the well-known liability to bacterial invasion (including bacillus coli infection) of persons debilitated by injury, disease, over-fatigue, senile tissue degeneration, and other conditions leading to diminished vital resistance. Thus, for instance, it is known that shortly before death, when the vital protective forces are more or less in abeyance, the bacillus coli and other bacteria can freely pass through the intestinal mucous membrane and so into the circulation, while their toxins, not being neutralised or destroyed, accumulate in the circulating blood, and are no doubt responsible for many of the symptoms preceding dissolution, including ante-mortem pyrexia. Metchnikoff, indeed, believes that such absorption is the primary cause of death in most cases of senility, while any check to such absorption tends greatly to prolong life.

I am led to believe that, in some of these cases at least, nervous worry and all the emotions of an unpleasant character, which I summarise generically as fear, are frequently a direct cause of alimentary toxæmia. Under the heading of "fear" I group

broadly all such emotions as may contain an element of fear, such as anxiety, sorrow (a present loss, with fear of unhappiness in the future), overwork, anger (fear of another), exaggerated self-consciousness (fear of criticism), and pain, with its milder varieties of malaise and fatigue. Fear, in its generally accepted sense, or any excitement of an intense and unpleasant nature, will commonly result in pallor with a feeling of faintness, while gastrointestinal and vesical disturbances frequently ensue.

What are the physical causes of these effects and, if these causes persist, how is the organism affected? Compare the physical signs of fear with the results of shock. During abdominal operations shock effects are sometimes manifest and have often been described. Here the intestines become deeply injected, increase in volume, and may finally emerge from the body cavity. This distension is not due to the formation of gas; it is paralytic. The vaso-constrictor fibres of the splanchnic area are paralysed, and similarly those whose function is to maintain visceral tone. The face becomes pallid from the fact of the blood leaving the head to fill the vessels of the mesenteric area, blood pressure is lowered, and if shock is severe or continued the heart may stop. Short of this last, the following conditions, by reason of this dilatation, then obtain: (1) The absorption area of the inner intestinal surface is greatly increased; (2) the absorbing area of the blood-vessel wall is also increased; (3) the intestinal wall is thinned; (4) the walls of the blood-vessels are thinned; (5) they contain more blood; and (6) the blood stream is slowed, remaining longer in the absorption locality. Now we have on the one side of the intestinal wall blood (and lymph), and on the other side food and toxins. All these six factors tend, by the law of osmosis, to favour absorption of the intestinal contents into the blood. Is it not therefore probable that the same condition, to lesser degree but for longer duration, is induced by the shocks and resultant fear complexes incidental to most lives? Truly more food may at the same time be absorbed, but prematurely, in that case, further increasing the waste products to be afterwards eliminated. In any event, the toxin rather than the food question here holds the field.

I submit that the effect of fear will produce to some extent the same condition of intestinal collapse observed in surgical shock, slight possibly in degree, but sustained if the cause persists, and further that this loss of visceral tone tends, in the erect posture, to cause a drag on the visceral nerves (which cannot stretch as much as the gastric and intestinal muscles) and enhances the shock effect. We note that in order to diminish this factor and lessen the heart's work the subject prefers to lie down.

A patient describes how the sight of an accident affects his stomach. He develops wind immediately and his heart becomes embarrassed. He has an "all-gone" sensation in his abdomen. Here again one can only believe that a sudden paralysis of gastric and probably of intestinal muscular fibres allows the expansion of gases already present, and that dilated viscera now press on the heart. As the emotion passes the tone of his intestinal tract returns, and the expulsion of wind from the stomach often completes his recovery. A man bracing himself for an ordeal instinctively tightens his belt (girds up his loins). He feels a vague need of abdominal tone and has a sense of power (courage) when this manœuvre has been carried out. Atony and flatulence may, I believe, be

¹ Proceedings of the Royal Society of Medicine, 1913, vol. vi., p. 250.

² Ibid., p. 267.

mutually dependent on one another, and the presence of a gas-producing micro-organism favours absorption of visceral content by causing stretching and thinning of the gastric and intestinal walls. I deem it likely that flatulence can directly cause constipation, a lacuna of gas in an over-distended section of gut producing a block in the peristaltic wave.

Dryness of the mouth is another symptom of fear which is due, I suggest, to a general re-absorption of fluid from the tissues in a compensatory endeavour to help to fill the vascular area, which has become enlarged owing to splanchnic paralysis, and thus to restore the vital equilibrium by raising the lowered blood pressure. The disappearance of thirst after a saline injection for shock illustrates the effect of our artifice in the supplying of material to assist a natural process. The evacuation symptom, which frequently results from fear, may be due to a falling of faeces, on paralysis of the previously emptied and contracted pelvic colon and rectum, to the point in the rectum where the evacuation reflex is obtained. Should the ileo-cæcal valve not be exempt from this suggested paralysis the small intestine, pouring liquid chyme into the colon, could give rise to the diarrhoea which is so often noted. A micturition reflex from fear may be explained in the same way. The sphincter is relaxed and escaping urine stimulates the reflex point in the posterior part of the urethra followed by urgent contraction of the bladder.

A nursing woman is said to produce toxic milk after an outburst of anger or receiving a fright. This circumstance would be difficult to account for otherwise than on some absorption theory like the above, and I suggest that abortion and miscarriage brought on by fear may be attributed to spasmodic uterine contraction (preceded possibly by an emotional paralysis of the os uteri, analogous to that suggested as affecting intestine and sphincter vesicæ) induced by toxic blood circulating in the uterine vessels or in the central nervous system.

Sea-sickness, it is well known, may be favoured and sometimes caused prematurely by fear.³ In other cases I think it likely that the movement of the waves gives rise to shock with gastro-intestinal paralysis and toxæmia. Perhaps the vitiated blood stimulates the vomiting centre in the medulla. Dilated viscera now press on a heart already hampered by low blood pressure, until some temporary relief is obtained by vomiting or eructation. The practice of tightly binding the abdomen and the success as prophylactic of pituitary extract, which raises blood pressure and causes intestinal contraction, appear to support this view. Causes originating in the eye or semicircular canals could initiate the same sequence of events.

I believe that slow convalescence after any infective illness is, partly at any rate, due to delay in the recovery of visceral tone. Many a patient can, with precision, date his improvement from the moment when he made a resolution to get well. On the contrary, it is generally accepted that nervous people are much more liable to the diseases and disasters they fear than are those whose courage is at a high level. These results would seem to follow naturally, if we can accept the theory that fear induces atony with resulting toxæmia. Nervousness sufficient to elicit a blush contains a small element of fear, and here a vasomotor paralysis alone is effected while the gastro-intestinal tract escapes. After shock prolonged for a considerable time it is likely that the "defensive mechanism" will suffer, and that absorption

will become habitual on the establishment of the vicious circle. For even when the fear is removed or diminished, the stomach and intestine, long fed by vitiated blood, may not at once recover their tone if the absorption of waste products has been overbalancing the eliminating capacity. Also the stomach tends to remain dilated and the colon to become the seat of accumulations consisting of faeces, possibly hardened, and mucus (which latter sometimes becomes organised into fibrous tissue) with sandy deposits of urates or phosphates. Now all these factors prevent the restoration of colonic tone and peristalsis and induce constipation. If, however, obvious constipation does not result the liquid content of the small intestine, propelled by the *vis a tergo*, can pass easily through a furred colon (to borrow a simile from a water pipe) in which circumferential layers of faeces move more and more slowly the nearer they lie to the wall of the colon till, at their periphery, stasis to a variable extent will obtain. Diarrhoea may characterise this condition.

The reason why some constipated persons are not obviously poisoned is, I believe, because (1) they are generally young and may have become constipated through habit and dietetic error, though other causes are not excluded; (2) their eliminating apparatus and toxin-destroying agents, working at high pressure, are still efficient; and (3) they have not yet lost intestinal tone, having no fear or anxiety state. Given time, their intestinal stasis, aided or not by fear, will eventually impair the tone of the hollow viscera and toxæmia will result. Tone is partly independent of peristalsis, though loss of the one may influence the other. In how many cases are people over 40 with constipation well?

So far I have mainly considered the circular muscular fibres of the hollow viscera. If these can be paralysed by fear, so, we may reasonably presume, can the longitudinal fibres and bands. The effect of this will be to lengthen the stomach and intestine, and, with the paralysis of the circular fibres, to increase their entire capacity in every dimension. Lengthening a hollow viscus, which is securely fixed at certain points, must infallibly produce sagging between those points, and this factor I consider at least as important as a prime cause of visceroptosis as that attributed by Sir Arbuthnot Lane to the weight of a loaded colon only. An atonic colon would become sooner and more heavily loaded than one tonically contracted. Thus ptosis would not be caused by, but would cause, stasis. Surgeons have noted a collapsed state of the appendix sometimes occurring when this organ is inflamed. Such an appendix would more readily admit and retain accumulations than one active in peristalsis and tone.

Mr. Lockhart Mummery describes a case which seems to bear out my theory of the relation of atony to toxæmia. He says⁴—

The whole of his intestines were much dilated and extremely thin, but no other lesion was found. [Italics are mine.] Appendicostomy was performed in the hope of clearing the toxins from the colon. The wound refused to heal at all, though it remained antiseptic, and in spite of treatment the dilatation of the bowel persisted. The bowels at last refused to act, even when the colon was filled with water, and although the small bowel was opened, he died, apparently from complete inactivity of the intestines and extreme toxæmia some three weeks later.

Acting on the belief that intestinal tone will check absorption, I have found, when an attack on the intestinal content has partly or entirely failed (often without this preliminary), that treatment

³ K. W. Millican: THE LANCET, Dec. 31st, 1881, p. 1152.

⁴ Proceedings of the Royal Society of Medicine, 1913, vol. vi., p. 181.

directed to the restoration of this tone has seemed to cut the vicious circle, presumably by allowing purer blood to repair damaged tissue or organs which by their inefficiency have shown themselves to constitute weak points. Particularly prominent are cases in which the nervous organisation has broken down and where I believe the fear, acting through the splanchnic nerves, has paralysed the intestine, causing absorption of toxins into the blood. This toxæmia affects the nerves, intensifying the symptoms and possibly establishing and confirming a fear-complex, while at the same time it impairs the vitality and contractile power of the visceral muscle. I will not attempt to apportion the improvement in these cases between the renewal of the patient's confidence and the arrest of toxic absorption. The two coöperate. Synchronising with this improvement increase of tone often becomes evident in a firmly contracted or contractile colon being now palpable instead of a gurgling unresponsive one, while the abdominal wall, once flabby or rigid and tender, has become supple and elastic. Prominence of gaseous distension has disappeared, and the abdominal muscles now exercise their function of holding the viscera back in position.

Loss of tone in voluntary muscles has been noted by various authorities, and Professor Geddes draws particular attention to the slackness in these cases of the abdominal muscles. This seems naturally to follow the general loss of control shown in all asthenic conditions, particularly noted in neurasthenia and psychasthenia. In this connexion the effect of continuous fear—i.e., worry—is easily explainable. Worry is a succession of fear states causing a loss of tone which becomes chronic. Further than this, we have to take into consideration the gradual establishment of a general affect tone, built up from successive experiences of a like nature. As the process of worry continues, the worry habit is formed and experiences of a neutral tone are coloured by the general outlook of the patient, converted into definite asthenic affects which aid the lowering effect on the mental energy, and lead to further loss of tone and the establishment of a psycho-physical vicious circle. In the development of atony in the alimentary tract (leading to visceroptosis) the fear or worry factor has often been a long time active before definite physical effects become evident. It follows, then, that the most rapid and efficient course is not always to direct the treatment to the physical condition alone, but to try at the same time to cut the psycho-physical vicious circle in another place by attacking it on the psychic as well as on the physical planes, and so to ease that tension of the mind which tends to keep up the condition of atony with its toxic sequelæ.

Thus, to summarise, apart from the consideration of the eliminating capacity, which may here be assumed to be more or less constant for the individual, toxæmia from the alimentary tract has always two factors—the chemical, comprising the toxins themselves, and the vital, dealing with the resisting power of the individual. This resisting power depends, I believe, on tone of the viscera and is powerfully influenced by the subject's state of mind. Further, this tone may well be part of a condition which should be normally shared by the entire musculature of the body. This explains adequately, I think, why the active are, as a class, more healthy than the sedentary.

I add a corollary to the foregoing. If fear can paralyse the hollow viscera, it must follow that

happiness and courage can, to some extent at least, cause them to contract and check toxic absorption. This would constitute a link between mind and body by which the power of suggestion is transmitted to the organism. Thus may some of the cures by Christian and allied "sciences" be explained, and improvement in health follow improvement in circumstances, be these affairs of heart or pocket.

Harley-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Jan. 22nd, Mr. T. H. KELLOCK, the President, being in the chair.

Dr. F. D. SANER showed a case of Congenital Syphilis in a girl. The child was apparently quite healthy until just over two years ago, when she had some pain and stiffness in the left elbow and ankle-joint. Some months later a small hard lump appeared about the centre of the forehead, which gradually enlarged and finally ulcerated. The left leg became very deformed, and for nine months before admission the child was unable to walk. No specific treatment had been given until the child was admitted to hospital on Nov. 11th, 1914. She was then extremely wasted and anæmic, and did not eat or sleep. There was a large, circular, foul-smelling ulcer with a sloughy base in the centre of the forehead quite half as large again as the present condition. The eyes were almost closed from oedema of the upper lids. The liver and spleen were distinctly palpable. Wassermann's reaction was positive. Since admission hyd. c. creta 1 gr. had been given three times a day, and an inunction of ung. hydrarg. $\frac{1}{2}$ dr. once daily. In addition, pot. iod. 5 gr. c. inf. gentian co. ad 2 dr., t.d.s., had been given, and sanitas fomentations to the forehead. A hydrogen peroxide mouth-wash had been used, and the treatment had been very well borne. The child had gained 12 lb. in weight since admission, and her general condition was satisfactory.

Dr. H. W. BARBER and Dr. F. D. SANER showed a case of Enlarged Liver in a boy, admitted to hospital on Dec. 27th, 1914, for pain in the right side, which had only been present for a few days. The boy was of average development for his age, and there was no history of any previous illnesses. On examination the liver was considerably enlarged; on the right side its lower border nearly reached the iliac crest; in the mid-line its lower margin was just below the umbilicus, and it could be traced to the left costal margin at the level of the ninth costal cartilage. The spleen was not enlarged. The Wassermann reaction was positive. There was no eosinophilia.

Mr. SYDNEY STEPHENSON reported a case of Hæmatoma of the Lower Lid (an unusual manifestation of infantile scurvy). A female infant, aged 5 months, was brought to hospital on Jan. 7th. She had been well until the middle of last December, when she developed "thrush" diarrhœa, and vomiting, symptoms from which she made a fair recovery in the course of about a fortnight. On Jan. 3rd a small black spot or line was noticed in the skin of the right lower eyelid. There had been no injury to the parts. On the following morning the eyelid was swollen and discoloured. For the first two months of life the baby had been breast fed, and after that Swiss milk was given exclusively. Since recovery from the attack of December last nothing had been given in the way of food except albumin water. No patent foods had been used in bringing up the infant. On admission the right eye was completely closed by the pressure of the lower lid, which was enormously distended with blood. The swollen parts were almost chocolate-brown in colour. The upper eyelid was not swollen, and exhibited merely a few insignificant patches of cutaneous ecchymosis. The eyeball was not protruded. The cornea was clear. The temperature was 99° F. The child had some colour in her

cheeks, and although somewhat wasted (weight 11 lb. 6 oz.) yet looked tolerably well. There was no tenderness on handling and no swellings about the legs or arms. There were no teeth, and the gums were in excellent condition. A provisional diagnosis of infantile scurvy was made, and the child admitted as an in-patient. She was placed on equal parts of "raw" milk and water. One teaspoonful of raw meat juice was given every three hours, alternatively with a similar quantity of orange juice. The affected eyelid was treated with compresses of hydrogen peroxide. The improvement in the state of the eyelid was striking. Two days after admission the condition was less marked. A couple of days later the baby could open the eye somewhat, and seven days after admission the eye could be widely opened, and the lower lid, although blood-stained like a "black-eye," was not swollen. In fact, in the course of a single week under antiscorbutic diet changes had taken place that in ordinary cases would have been spread over three weeks or a month. The infant's general health, unfortunately, did not improve *pari passu* with the local condition, and the child died on Jan. 18th from pneumonia and pneumococcal meningitis.

Mr. SYDNEY STEPHENSON and Dr. SYDNEY A. OWEN showed a case of Polio-encephalitis Inferior of the Oculomotor Type in a girl aged 8 years. She had gone to bed in her usual health, and the next morning "the eye was turned," and she complained of pain over her right brow. Examination three days later showed slight ptosis of the right eye which was deviated outwards and upwards. There was a defect in the downward and inward excursions of the eye. The secondary deviation was outwards and a little downwards. Diplopia was crossed, the false image being at a lower level than the true, its upper end inclined outwards. The signs therefore indicated a paresis of the inferior rectus of the right eye. The right pupil measured 6.5 mm. and the left 5 mm. The latter responded actively to light, but the former was sluggish. There were no other signs of nervous disease.

Dr. SHEFFIELD NEAVE showed a case of Infantile Paralysis with Excessive Knee-jerk in a boy aged 2 years. The right leg showed flaccid paralysis, deficient response to electrical stimuli, wasting of the calf muscles, excessive knee-jerk, and extensor plantar response.

Dr. J. D. ROLLESTON reported a case of Congenital Heart Disease and Ulcerative Sore Throat. A male infant, aged 11 months, was admitted to hospital on Dec. 6th, 1914, certified to be suffering from diphtheria, on the eleventh day of disease. The father had always been healthy, but the mother had been an in-patient at the Brompton Hospital on several occasions for rheumatism with cardiac complications. The child had always been delicate and blue from birth. Clubbing of the fingers had been noticed since he was aged 2 months. On admission the child appeared to be very ill. There were membrane on the tonsils, pillar, and uvula, and a profuse nasal discharge. The heart sounds were clear but rapid. There was a trace of albumin in the urine. A large dose of antitoxin was given on admission and on the following day. A few organisms resembling diphtheria bacilli were found in the cultures, but cocci were predominant. On Dec. 8th a loud systolic murmur was audible all over the præcordium. There was marked ulceration of both tonsils. No Vincent's organisms were found in the throat smears. The ulceration gradually spread over the uvula and palate. On the 13th stridor and a hoarse cough developed, and there was much difficulty in swallowing. The symptoms persisted, and the general condition became worse until death took place from bronchopneumonia on the 20th. The heart showed the following anomalies: (1) Transposition of the great arterial stems, the aorta arising from the infundibulum of the right ventricle and the pulmonary artery from the left ventricle; (2) marked deficiency of the interauricular septum, which was represented by a narrow band 1.5 cm. long by 0.5 cm. broad (the foramen primum lay anterior to it, and posteriorly there was a widely patent foramen ovale); (3) an interventricular foramen, 1.2 cm. in diameter, in the "undefended space"; and (4) stenosis and hypoplasia of the pulmonary artery, the valve of which had only two cusps. The fauces and larynx showed ulceration of the tonsils, frenum, epiglottis, right aryteno-epiglottidean fold, and deep ulceration of the laryngeal portion of the pharynx on each side, especially on the left, exposing the muscular tissue and eroding the thyroid cartilage.

Dr. J. PORTER PARKINSON showed a specimen of Acute Atrophy of the Liver. The patient, a girl aged 5½ years, had had jaundice for five weeks. At first the liver was enlarged, and had gradually got smaller till it could no longer be felt. The urine contained bile pigment and acetone, but no albumin, leucin, or tyrosin. Delirium set in and death took place. Post mortem the liver weighed 1½ lb., was pale yellow and very friable. On section it showed yellow areas, between which were small dark red spots. The gall-bladder and ducts were normal. Microscopically, there was general staining with bile pigment. The cells were distended with fat, but the nuclei were well marked. There was no distension of the bile-ducts and no actual necrosis of the cells. No micro-organisms were found in the specimens.

Dr. E. B. GUNSON showed specimens from a case of Suprarenal Hæmorrhage in an infant. The child was first seen on the sixth day after birth. There was a slight discharge from the umbilicus, the cord having separated. On the eighth day the temperature rose suddenly to 102° F., and cellulitis of the forearm developed. The stools became frequent, loose, and offensive. The child was collapsed, and died on the ninth day, 30 hours after the onset of symptoms. Post mortem the right suprarenal was greatly enlarged, and on section was found to have been converted into an almost black hæmorrhagic pulp. The left suprarenal was similarly affected, but to a less extent. A culture from the heart's blood gave a pure growth of streptococcus. A Gram-stained preparation of the left suprarenal showed the presence both in the cortex and medulla of streptococci.

Dr. GUNSON also showed a photograph of a case of Purpura complicating diphtheria. The purpura appeared at the site of an antitoxin rash and persisted till death. Before death the purpuric patches on the cheeks and ears became confluent. Superficial ulceration occurred, but there was very little loss of substance. Hæmorrhages occurred into the gums, and an extensive subconjunctival hæmorrhage appeared in the right eye. There was old-standing constipation, the stools resulting from the administration of castor oil and turpentine being very copious and markedly offensive for many days. Palatal palsy, carditis with "cardiac paralysis," arthritis, and albuminuria developed before death on the twenty-eighth day.

Dr. F. J. POYNTON and Mr. T. T. HIGGINS showed specimens illustrating a Persistent Pharyngeal Rudiment, occurring in an infant aged 5 months. Some difficulty in swallowing, associated with coughing and occasional dyspnoea, had been noticed for five weeks. A pearly-white rounded polypoid tumour was discovered in the pharynx, and under anaesthesia was demonstrated to spring from the left supra-tonsillar fossa, being attached in this position by a narrow fibrous stalk. After removal it proved to contain a narrow bar of cartilage, embedded in fibrous connective tissue, exactly resembling subcutaneous tissue, and covered by perfectly formed skin.

SECTION OF DERMATOLOGY.

Exhibition of Cases.

A MEETING of this section was held on Jan. 21st, Dr. J. J. PRINGLE, the President, being in the chair.

The PRESIDENT showed a case of Pemphigus Vegetans in a soldier aged 28. The disease began in September, 1914, and presented the characteristic bullous lesions on the skin and mucous membranes in abundance and vegetative condylomatous lesions in the armpits. The serum obtained from the recent blebs was sterile, but pus infection rapidly ensued, and the case presented marked evidences of sepsis throughout its duration. Remarkable improvement had taken place under treatment by vaccines of four varieties of coliform bacilli found in the faeces and of staphylococci and bacillus proteus from his bullæ; but probably much of his improvement was due to prolonged baths and other local antiseptic measures.—Dr. G. PERNET commented on the unusually benign course of the disease, contrasting it with others he had observed.—Dr. A. WHITFIELD referred to a case of pemphigus vegetans in which the bullous element was very imperfectly developed.—Dr. J. H. SEQUEIRA related the history of a severe case of the disease which had apparently recovered despite his unfavourable prognosis; he discussed the relationship of the condition to dermatitis herpetiformis.—Dr. J. M. H. MACLEOD confirmed

the observation that the early bullous manifestations of the disease were sterile.—Dr. A. M. H. GRAY mentioned the recovery of a possible case of the disease, and the PRESIDENT replied.

Dr. PERNET showed a case of Erythema Centrifugum which corresponded to the disease originally described by Hebra as seborrhœa congestiva.

Dr. H. W. BARBER brought forward a case of Pityriasis Rubra Pilaris, typical as regards its elementary lesions and distribution on the hands, feet, scalp, and trunk, in a woman, aged 41, in the seventh month of pregnancy. She had previously given birth to seven children.—The PRESIDENT thought that the association of the skin disease with pregnancy was fortuitous.—The case was discussed by Dr. WHITFIELD and Dr. PERNET.

Dr. SEQUEIRA exhibited a case of Dry Gangrene of Several Toes of Obscure Etiology in an Infant.—Dr. PERNET suggested the possibility of the existence of Raynaud's disease dependent upon congenital syphilis, and this view was emphasised by Dr. F. PARKES WEBER and Dr. A. DOUGLAS HEATH.—Dr. WHITFIELD and Dr. BARBER also discussed the case.—Dr. SEQUEIRA replied that the case would be further investigated as regards congenital syphilis, of which he saw no evidence.

Dr. MACLEOD presented a woman with Eczematoid Ringworm of the Hand, presumably contracted from her children, who were suffering from small-spore ringworm of the scalp. He had reason for thinking that the infection was originally of feline origin, and cited Dr. Colcott Fox's observations on the subject.—The PRESIDENT and Dr. SEQUEIRA referred to the frequent discovery of epidermophyton fungus in lesions of the hands, which without microscopic examination would have passed as dysidrosis or vesicular eczema.—Dr. S. E. DORE referred to the frequency of cat ringworm in this country as compared with its rarity in France.—Dr. PERNET alluded to a case of feline microsporon ringworm which he had reported some years ago.

Dr. SEQUEIRA showed a Bristle from a Hair-brush bearing numerous Ova of the Pig Louse (*Hematopinus suis*), which was, however, not communicable to man.

Dr. ALFRED EDDOWES brought forward a case of Recurrent Circinate Erythema in a child.

Mr. T. P. BEDDOES showed a case of Extreme Hyperidrosis of the Hands of lifelong duration in a young woman.—The PRESIDENT, Mr. H. C. SAMUEL, and Dr. SEQUEIRA discussed the case.

Dr. E. G. GRAHAM LITTLE showed the following cases: 1. A case of Typical Lichen Spinulosus in a child, which supported his contention that the disease had no relationship to lichen planus. 2. A case of Parapsoriasis en Plaques. 3. A case of Unusually Inflammatory Pityriasis Rosea.—Dr. SEQUEIRA and Dr. EDDOWES agreed as to the occurrence of an epidemic of pityriasis rosea at the present time, and the PRESIDENT, while agreeing with the exhibitor's diagnosis, pointed out the difficulty of differentiating it from acute seborrhœa of the body.

MEDICAL SOCIETY OF LONDON.

Radiography in its Relation to the Present War.

A MEETING of this society was held on Jan. 25th, Sir J. BLAND-SUTTON, the President, being in the chair.

Dr. W. IRONSIDE BRUCE demonstrated and read a paper on an X Ray Director for the Removal of Foreign Bodies in the Tissues, which will appear in an early issue of THE LANCET.—Sir J. MACKENZIE DAVIDSON complimented Dr. Ironside Bruce on his apparatus, describing it as ingenious and remarkably accurate.—Mr. DONALD J. ARMOUR said that he could bear out all that had been said with regard to its value.—Mr. S. MAYNARD SMITH said that he always used an X ray screen during the actual extraction of foreign bodies, and had never experienced any difficulty from the point of view of sepsis being introduced. He welcomed the improved method demonstrated by Dr. Ironside Bruce.

Sir JAMES MACKENZIE DAVIDSON gave an address on the Telephone Attachment in Surgery, and demonstrated the use of the telephonic probe. His address is published in full on p. 217 of our present issue.—Mr. ARMOUR described a case in which he had used this method for the removal of a piece of shrapnel which had

lodged within the orbit. It was 3 mm. in width and lay 12 mm. from the surface. The operation, which might have been a difficult one, was thus rendered easy.

Dr. F. HOWARD HUMPHRIS exhibited lantern slides of Injuries occurring among the Wounded at the 3rd London General Hospital. Among the radiograms were some showing that bullets had penetrated through bone, producing little injury to it. Two other radiograms showed bullets lying against the pericardium. The patient, who had been wounded by one of these, had returned to the front with the bullet still *in situ*.

The meeting was adjourned until Feb. 22nd, when further contributions will be made by Dr. A. C. Jordan, Dr. G. Harrison Orton, Mr. S. Gilbert Scott, Dr. Stanley Melville, and Dr. Robert Knox.

LIVERPOOL MEDICAL INSTITUTION.

Pityriasis Rubra.—Treatment of Displacement of Uterus.—Incoördination of Function in Relation to Disease.

A MEETING of this society was held on Dec. 17th, 1914, Dr. E. W. HOPE, the President, being in the chair.

Dr. F. H. BARENDT read a note on Pityriasis Rubra and showed a patient. He referred to three cases, discussing one in detail.—The PRESIDENT and Dr. R. W. MACKENNA discussed the note, and Dr. BARENDT replied.

Dr. A. STOOKES described a new electro-cautery for intra-uterine work, and read a note on the Treatment of Displacement of the Uterus. He believed in the existence of discomfort in cases of uncomplicated retroversion, and he described several forms of operation.

Dr. C. J. MACALISTER submitted an interesting paper on Incoördination of Function in Relation to Disease. He defined the subject and then described the interdependence of the organic functions, showing that disease of one kind may produce symptoms referable to another. In his opinion gastric ulcer was possibly associated with defective chemical coördination due to the climacteric of puberty, Raynaud's symptoms being prodromal in nature. He instanced psychoses in children, which in his opinion depended upon the chemical incoördination. He gave several instances of marked improvement under thyroid.—The PRESIDENT emphasised the value of education as a therapeutic agent.—Major T. R. BRADSHAW, Captain W. B. WARRINGTON, and Dr. A. S. PARKINSON discussed the paper, and Dr. MACALISTER replied.

At the annual meeting of this society, held on Jan. 21st, the following list of office-bearers and members of council was adopted:—President: E. W. Hope. Vice-Presidents: R. J. M. Buchanan, Alexander Stookes, R. J. Hamilton, and W. J. Fleetwood. Treasurer: Llewellyn Morgan. General Secretary: Frank H. Barendt. Secretary of Ordinary Meetings: John Hay. Secretary of Pathological Meetings: D. Moore Alexander. Librarian: Nathan Raw. Editor of the Journal: R. W. Mackenna. Council: V. C. De Boinville, James Huskie, Robert Jones, W. McAfee, A. C. Ransome, J. H. Willett, Claude Rundle, Reginald T. Bailey, Thomas Guthrie, F. M. Gardner-Medwin, W. Allen Daley, W. C. Oram, and Gerald Wallace. Auditors: V. C. De Boinville and P. F. Tinne.

METROPOLITAN HOSPITAL SUNDAY FUND.—At a council meeting of this Fund held at the Mansion House on Jan. 20th, under the presidency of the Lord Mayor, the various committees were re-elected, with the addition of the Rev. Hardy Harwood to the distribution committee, the Rev. H. A. Hall to the general purposes committee, and Mr. John Roberts to the finance committee. Sir Ernest Tritton, Bart., was appointed vice-chairman of the Fund, and the honorary secretaries and the auditors were re-elected. During the course of the proceedings sympathetic reference was made to the death of Mr. Thomas Bryant, who had been a member of the council for 22 years, and on the motion of Sir Ernest Tritton it was unanimously agreed to send a letter of condolence to members of the family. In replying to a vote of thanks the Lord Mayor said that he would do everything possible to assist the Fund, which was one of the most excellent movements in the country.

Reviews and Notices of Books.

Tuberculosis of the Bones and Joints in Children.

By JOHN FRASER, M.D., Ch.M. Edin., F.R.C.S. Edin., Assistant Surgeon, Royal Hospital for Sick Children, Edinburgh. With 51 plates and 164 illustrations. London: Adam and Charles Black. 1914. Pp. 352. Price 15s. net.

Mr. John Fraser's monograph is inscribed to Mr. Harold Stiles. If it is thus to a certain extent "placed," it will be generally admitted that it is well placed; and at the same time there is internal evidence that the author has spared no pains to form an individual opinion upon theory and practice. Mr. Fraser is canny. His cautious "conclusions" on p. 91 as to the value of tuberculins in treatment might strike the vaccinist as an exercise in the gentle art of damning with faint praise. Throughout, too, there may be discerned a reserve in dogmatism which is natural enough when associated with such an extensive study of the literature as is implicit in the text, even if, in view of a modest disclaimer in the preface, it may not be deduced from the extensive and valuable bibliographies at the end of each section.

The book is divided into two main sections: "general," dealing with etiology and pathology, clinical features and diagnosis of bone and joint tuberculosis, X ray appearances, prognosis and the broad lines of treatment; and "special," dealing seriatim with regional lesions in their more particular aspects and detailed treatment. The special section is thoroughly well done, with a wide and at the same time a distinctive outlook, but there is little in it that may not be found in other recent works on the subject. It is the general section, and more particularly the extensive study of bone tuberculosis, its etiology, morbid anatomy, and histology, which will be read with attention by all interested. Mr. Fraser's arguments are rendered more cogent and lucid by the numerous and successful microphotographs and photographs. With the general lines of vascular access and spread and close dependence on the distribution of vessels most readers will be familiar and in agreement; whether the latter factor has quite the degree of dominance here accorded will need further consideration in relation to similar phenomena of the more acute infections. The footnote on p. 26, in which Mr. Fraser records a modification of his textual opinion as to the hypertrophic bone lesions of tuberculosis, is of great interest for several reasons: it indicates his frank attitude of scientific doubt; it hints at the probably not infrequent association of the syphilitic with the tuberculous virus, whether simultaneous or sequential; and it may lead to an inquiry whether the hypertrophic lesion may not be, at least very often, the indication of association of another organism—for example, the staphylococcus—and not the product of the tubercle bacillus alone. It was to be expected, but cannot be too often reiterated, that the bovine bacillus should be found responsible for a large proportion of the cases of infection in children—Mr. Fraser found 60 per cent. of a series of 70 examined bacteriologically; and that the milk-supply is to be held ever suspect. Hyperæmic treatment is praised somewhat lukewarmly, a distinction as to efficiency being drawn in favour

of the upper as against the lower limb, and the positive statement is made that the formation of cold abscesses is hastened by it. With regard to aspiration of abscesses and the injection of medicaments, whilst the various methods are indicated the reader is left to deduce that the author either does not practise them or has no high opinion of their utility; his attitude is somewhat similar towards the employment of injections for sinuses.

The special section is uniformly good on conventional lines; here and there it is possible to pick holes—for example, in the paragraph "diagnosis," on p. 299, of dactylitis, but the faults are venial and the merits considerable. The whole monograph will repay reading and must prove of value both to students and surgeons of experience.

The Philosophy of Change: a Study of the Fundamental Principle of the Philosophy of Bergson.

By H. WILDON CARR. London: Macmillan and Co. 1914. Pp. 216. Price 6s. 8d. net.

THIS book is founded upon a course of lectures delivered by the author in the University of London. It deals, as the title indicates, with the philosophy of Bergson. It is, however, much more than a mere commentary upon that philosophy. The author's main preoccupation is with the relation of mind and body, matter and spirit; and it is this problem which he seeks to interpret in the light of what he calls the philosophy of change. The view now prevalent among physiologists is that which regards all conduct and activity as depending exclusively on the material processes taking place in the brain and nervous system. No active efficiency is attributed to mind, which is regarded as a mere phosphorescence, or "epiphenomenon," occurring in conjunction with certain cerebral processes, but having no power to affect their evolution in any way. This view is attacked by Mr. Carr. Although he is unable to offer any valid arguments against the all-sufficiency of cerebral processes in accounting for human activities—a theory which, indeed, is rapidly becoming an axiom of physiology—yet he does advance weighty reasons against the view that mind is a passive accompaniment of another order from the brain. The argument, which is of metaphysical character and too long to reproduce here, does not, however, seem to us to have any force against what is called the double-aspect theory—namely, that mental and cerebral processes are not two different things, but two different aspects of the same thing. This, as Mr. Carr is well aware, is much the most powerful position of the mechanists; and it would have been preferable if he had directed his analysis against that rather than against an older and less tenable hypothesis, already widely abandoned. What he does is to refute the earlier and more easily refuted theory, and then to announce that the more developed theory "comes to grief on the same rock"—a statement which many will regard as wholly unjustified.

As regards matter and spirit, Mr. Carr takes, of course, the Bergsonian view as to the special connexion of mind with time and of matter with space. "A simultaneous cross-section through space would reveal all the matter existent in the universe, but would not reveal mind. On the other hand, a cross-section through time would reveal mind, but would not reveal body." It has often before been urged that Bergson's apotheosis of time—his view

that there is something profound and absolute in it, quite apart from the mere sequence of one moment upon another—is an empty simile, from which no genuine concept arises. Indeed, it is not possible to understand Bergson's theory unless we visualise time as though it were space, and the theory falls to the ground the moment we abstract from his conception of time those spatial attributes without which that conception could never have been attained. Mr. Carr, taking a cross-section through time, is clearly visualising, not time, but space; and what he and Bergson choose to call time is really a sort of hyperborean space conjured up by an alert imagination.

Whether or not we agree with Mr. Carr—and in philosophy that is largely a matter of temperament—we are bound to admit that his book is able, remarkably lucid, and conspicuous throughout for its sincerity and honesty of purpose. If it is true of philosophy, as Gibbon suggested, that "her gentle hand alone is able to eradicate from the human mind the latent and deadly principle of fanaticism," then we may affirm that Mr. Carr's book is wholly worthy of this exalted ideal. Especially at the present time we cordially wish it the wide success which it deserves.

The Book of Pharmacopœias and Unofficial Formularies.

By E. W. LUCAS, F.I.C., F.C.S., and H. B. STEVENS, F.I.C., F.C.S. London: J. and A. Churchill. 1915. Pp. 524. Price 7s. 6d. net.

THE compilation of this book must have entailed considerable labour and much industrious research. It is an attempt to present in a simple comparative form the formulas contained in the pharmacopœias of Great Britain, the United States, France, Germany, and Italy. It also includes copious extracts from the unofficial formularies of these countries, as well as from the pharmacopœias of the leading London hospitals. As a work of reference this book will certainly be of far more value to the dispensing and manufacturing chemist than to the medical man; by the former class many valuable suggestions may be gathered from a careful consideration of the reasons which determine the differences between the formulas of the various countries. It is to be feared, however, that prescribers, especially at the present time, may maintain the attitude of Gallo, and pass by numerous small points which might improve their prescriptions.

An initial difficulty was apparently experienced in the nomenclature, and the authors have wisely made the arrangement under the "commonly used Latin name," regardless of the question whether the name selected is that which is officially recognised in this country. Under the title a series of synonyms is placed, and here again there is no indication of the countries, if any, in which these synonyms are official. The geographical range of employment has to be gathered from the reader's ideas of foreign languages; the synonyms may be those familiar in this country, they may be alternative titles used to conceal the true composition, or they may be the official names from one or other of the foreign pharmacopœias to which reference is made. The actual comparison of the composition and mode of preparation is facilitated by arrangement in parallel columns under the headings of abbreviated titles of the source, while the

process employed is shown by affixing an arbitrary letter, which is explained in an appendix. It is thus easy to see at a glance that extract of opium is of the same strength in the five pharmacopœias, that in all the same quantity of opium is used, but that in one instance the process of extraction differs from that adopted in the other four.

In a book published subsequent to the new British Pharmacopœia, it is to be regretted that the metric system has not been adopted; the authors state that the imperial system of weights and measures has been adhered to, since it is the system still in general use by medical men and pharmacists. It may be true that this procedure will save time and trouble involved in making the necessary calculations when a few ounces of any preparation are required, but the whole point of the introduction of the metric system seems to have been overlooked—viz., the facility of dealing with foreign prescriptions, which are invariably written in metric terms. The avoidance of the metric system is the more surprising since temperatures are expressed in degrees Centigrade, instead of Fahrenheit. Throughout the book, under sectional headings, there are numerous valuable directions about methods of preparation; these are most detailed in connexion with the extracts, which should be easy to prepare from the information afforded. For the tinctures the same amount of care has not been expended. Reference is made to the processes of solution, maceration, and percolation, but under the individual preparation we find no clue to the special process to be adopted, though the strength of alcohol is noted, and clear indication is given as to when the liquid should be weighed and when it should be measured. A *materia medica* table, consisting of a dozen pages, gives the French, German, or Italian names of plants or parts of plants, together with their English equivalents. These tables will save much trouble in enabling the pharmacist to identify strange names with familiar articles. Although considered by the authors to be a table of vegetable *materia medica*, it includes lard, honey, and leeches, but the foreign equivalents are so unlike the English terms that we ought not to cavil at finding them in such strange company.

Viewed as a whole this book is likely to be of great service to pharmacists, especially to those who are called upon to dispense foreign prescriptions. The probability of the early need of a new edition has led us to indicate directions in which it may be improved by the removal of minor blemishes or by the addition of further detail.

Physiological Principles in Treatment.

By W. LANGDON BROWN, M.A., M.D. Cantab., F.R.C.P. Lond., Assistant Physician to St. Bartholomew's Hospital, &c. Third edition. London: Baillière, Tindall, and Cox. 1914. Pp. 408. Price 5s.

In reviewing previous editions of this book¹ we called attention to the fact that advances in physiology often fail for many years to find themselves reflected in clinical work, and indicated that the task set himself by the author was to bridge the gulf between the experimental laboratory and the sick ward, and to reconcile physiology with therapeutics, offering to the general practitioner, to whom the work is addressed, a physiological reason for the therapeutic faith

¹ THE LANCET, Dec. 26th, 1903, and Feb. 13th, 1911.

that is or ought to be in him. We also gave expression to a high opinion of its merits.

The time that has elapsed since the second edition was published has necessitated very thorough review, and has led to some rearrangements and the addition of two chapters. One of these chapters deals at length with the mechanical factors in indigestion. Attention is drawn to "spasmodic hour-glass contraction." Much controversy has centred round the question of the existence of a "middle sphincter" in the stomach. It is known that under abnormal stimuli the circular muscle at the beginning of the pyloric vestibule is capable of powerfully contracting and dividing the gastric lumen. The condition is liable to be mistaken for an organic hour-glass contraction. Dr. Brown expresses the view that the spasm is usually due to the presence of an ulcer, which is generally situated on the lesser curvature, and may be quite small. But it may occur in other conditions, and we think that he is probably right in the belief that the symptoms in so-called "appendix dyspepsia" are in part at any rate due to such reflex spasm. A chapter, which is partly new, is headed "Albuminuria and the Treatment of Nephritis." The difficulties in arranging the diet are duly discussed, and it is rightly pointed out that too rigid a limitation of the protein with the idea of diminishing the albuminuria is bad, because it cannot effect the desired object and deprives the patient of an essential form of nourishment. On the other hand, an excessive protein diet is inadvisable, even if the patient can metabolise it, because he is getting the energy in a form that throws work on to the damaged excretory organs. We agree with Dr. Brown's contention that it is undesirable to restrict patients suffering from chronic nephritis to milk, which is too dilute a form of food for them, and may increase the oedema.

There is much in this volume that is of value to the practitioner; the work is well written and affords interesting reading.

The Operative Treatment of Fractures.

By Sir W. ARBUTHNOT LANE, Bart., M.S. Lond., F.R.C.S. Eng., Senior Surgeon to Guy's Hospital, and Emeritus Surgeon to the Hospital for Sick Children, Great Ormond street. Second edition. London: The Medical Publishing Company, Limited. 1914. Pp. 184. Price 10s.

Twenty-two years have elapsed, the author tells us, since he made it his habitual practice to operate on all cases of simple fractures of the long bones in which he was not able to obtain accurate apposition of fragments, when the restoration of the bone to its normal form was of mechanical importance to the individual; and this statement expresses the idea of the book. The reasons for all that the author does are clearly explained, and he describes the results that he has obtained.

Opinions certainly differ on many points in relation to the systematic plating of bones, but all surgeons must acknowledge the ingenuity of the author's methods, the skilfulness of his manipulations, and the excellence of the results obtained. Those who do not know at first hand the methods advocated by Sir Arbuthnot Lane will find in this volume what they wish to know; but they should see the author at work if they wish to appreciate fully what surgery can do in fractures.

LIBRARY TABLE.

Medical History Manuals: Pasteur and After Pasteur. By STEPHEN PAGET. London: Adam and Charles Black. 1914. Pp. 152. Price 3s. 6d. net. —It is obvious that the history of medicine will soon have to be treated after the fashion of the Cambridge Histories—that is to say, in periods by specialists. The book now before us is the first of a forthcoming series of Medical History Manuals to be published under the general editorship of Dr. J. D. Comrie, future volumes of which are to deal with Greek and Roman Medicine, Mediæval Medicine, the Artist Anatomists of the Cinque Cento, Sydenham and Clinical Medicine, and the Predecessors of Lister, all by various writers expert in the subjects which they have undertaken. In this volume Mr. Paget has devoted the first 90 pages to a simply written résumé of Pasteur's life and work, derived in great measure, as he himself admits in his preface, from M. Vallery Radot's "Vie de Pasteur." It is well that British readers who have not the time and possibly not the energy to embark on the study of the longer life should have the opportunity of studying the main facts of a life so unassuming, so earnest, so painstaking, and so fraught with benefit, both to man and the animal creation, as was Pasteur's. Theology is called the queen of the sciences because it includes all the others, and for this reason, that the patient and humble study of Nature is a chief path that leads to a knowledge (as far as finite minds can understand the Infinite) of the Creator of all things. And of Pasteur, whose studies into the secrets of Nature began with the humble "life" of crystals, it was said that "here was a man whose spiritual life was no less admirable than his scientific life." From Pasteur's labours came much of Lister's work and the understanding of, together with the ability to defeat, infective diseases, especially as Mr. Paget shows, tuberculosis, diphtheria, cholera, plague, typhoid fever, Malta fever (known no longer by the unfair name), yellow fever, malaria. It was from Pasteur's work on fermentation, putrefaction, the diseases of silkworms, anthrax, and many other phases of departure from health, that other earnest workers found out how to fight disease, and no more simple or striking proof of this can be found than in the account of the stamping out of undulant fever as given in Mr. Paget's excellent little book.

The Elements of Chemistry. By H. LI. BASSETT, B.A., B.Sc. With an introduction by Professor W. S. POPE, M.A., F.R.S. London: Crosby Lockwood and Son. 1914. Pp. 368. Price 4s. 6d. —There is nothing strikingly original about this collection of principles and facts presenting, in the author's words, "as concisely as possible all the chemistry—general, inorganic, organic, and practical—that is required for the Conjoint Board and First Medical Examinations." It will serve its purpose, however, if it is placed early enough in the hands of students who intend to pursue a medical or dental career, inasmuch as if they digest so much chemistry before they join the hospital or university so much time will be saved. The author has been careful to include just what is necessary. While it is something more than an elementary school book, it avoids a stock of materials which for the time being, at any rate, are not essential. Nowadays, of course, the student of medicine finds that he must pursue chemistry considerably further than the mere elements, or his ideas of the great physiological processes will be most incomplete. However, it

is a decided gain to secure a good groundwork, and this is well provided for in this book, which is clearly written and well arranged.

Artrocaces (Arthritis Tuberculosis). Por el Doctor D. RICARDO LOZANO MONZÓU, Zaragoza: Tipografía de G. Casañal. Pp. (circa) 600. Price 15 pesetas. —Dr. Monzóu divides his work on tuberculous arthritis into two parts, general and special. In Part I. he opens with a brief introduction dealing with the history of the subject, in which four periods are recognised, an archaic period of confusion, a middle period of rudimentary differential diagnosis between tuberculous and other arthritic affections, a modern period commencing with the discovery of the tubercle bacillus by Koch and its demonstration in scrofulous joints, and the present period of "therapeutic controversy." The remaining chapters of this division deal with etiology, pathological anatomy, symptomatology, prognosis, and treatment, general and local. To the chapters on treatment are appended statistical tables summarising the operative work of the author and of Dr. Rollier, of Leysin, up to the end of 1913. Parts II., III., and IV. deal respectively with tuberculous arthritic affections of the upper and lower extremities and of the trunk, each articulation being treated of individually. A brief account is given in Part V. of tuberculous polyarthritis or tuberculous rheumatism of Poncet. A useful bibliography completes this portion of the book, the remaining pages being devoted to illustrations, of which there are no fewer than 196.

Clean Water and How to Get It. By ALLEN HAZEN. Second edition, revised and enlarged. London: Chapman and Hall, Limited; New York: John Wiley and Sons. 1914. Pp. 196. Price 6s. 6d. net. —This book contains interesting statistics in connexion with questions of communal water-supply. General principles of course apply to every country. The references here given are limited to the water undertakings in the United States, but valuable lessons are given to all water engineers and public health authorities. We spoke favourably of this book on the occasion of the first issue in 1907. It has now been brought up to date and into line with the progression made in water engineering schemes.

JOURNALS AND MAGAZINES.

British Journal of Tuberculosis. —In the January number Dr. Kenneth Fraser discusses, in a commended M.D. Thesis of the University of Edinburgh, early pulmonary tuberculosis in childhood. On the basis of an examination of approximately 300 cases of pulmonary tuberculosis, mostly incipient, among 29,750 elementary school children in Cumberland, an investigation was conducted into age incidence, weight and nutrition, the meaning of night sweats, the occurrence of cough, the pathological condition of the lungs, the detection of pulmonary dulness, the presence of accompaniments, and the character of breath sounds. In relation to children Dr. Fraser suggests the expression inadequate increase of weight in place of failure to put on weight or loss of weight, for "physiologically even the phthisical child is automatically increasing in weight year by year." Among his conclusions he considers inadequate increase of weight as very suspicious; defective nutrition as probably the earliest indication of tuberculous infection; inequality of breath sounds as a very early indication, of which friction and fine crepitations are the most significant accompaniments, though all accompaniments are suspicious if persistent and especially if localised. —Mr. H. Morriston Davies discusses the surgical aspects of pulmonary tuberculosis, immobilisation of the lung and obliteration of cavities, and the selection of cases suitable for treatment by

immobilisation. —Mr. Harold Barwell reviews recent views on laryngeal tuberculosis, Mr. Godfrey B. Dixon considers the domiciliary treatment of tuberculous patients, and Dr. William Cox discipline and recreation in the sanatorium. —Dr. Thomas D. Lister in an illustrated article describes an apparatus for the production of artificial pneumothorax, based on that of H. de Carle Woodcock, of Leeds, oxygen being added to the nitrogen used in the former.

Science Progress. —The January issue, after an article on Militarism and Party Politics, contains a sympathetic criticism by Mr. H. G. Plimmer, F.R.S., of Mr. T. A. Cook's book, "The Curves of Life," which was reviewed in our columns recently. —Miss L. S. Stebbing replies to Dr. C. A. Mercier's article in the October issue on Some Logical Impossibilities, suggesting that the syllogism is not the exclusive form of all argument; and, secondly, that Dr. Mercier's non-syllogistic arguments are merely syllogisms in disguise, depending for their validity on an unexpressed but necessarily implied proposition. —Mr. Hugh Elliot presents us with a survey of the problem of vitalism, showing the ground already traversed by controversialists, examining the types of arguments used, and estimating the position now reached. His trend is mechanistic. —Mr. Allan Ferguson discusses Capillary Constants and their Measurements, and suggests that, inasmuch as in a large number of papers dealing with this subject the multitude of units in which surface tensions are given causes a great deal of trouble, much labour would be saved to those engaged in comparing the accuracy of different methods and searching for general results connecting capillarity and constitution if capillary constants were invariably expressed in C.G.S. units—surface tensions in dynes per centimetre, and specific cohesions in square centimetres. —Mr. J. N. Pring, in a paper on the Formation of Ozone in the Upper Atmosphere and its Influence on the Optical Properties of the Sky, considers certain factors which determine the optical properties of the atmosphere, and discusses the chemical estimation and distinction of some constituents of the atmosphere, the action of ultra-violet light on air, the estimation of ozone in the atmosphere at high altitudes, and the influence of ozone on the nature of light from the sky. —Dr. F. W. Edridge-Green discusses colour vision and colour vision theories, including the theory of vision, and incidentally enters a very cogent protest against the official scientific methods of accepting or rejecting papers. —A paper on the International Struggle for Manufactures as Illustrated by the History of the Alum Trade, by Mr. Rhys Jenkins, is followed by an illustrated article by Mr. C. Edward Wallis on Ancient and Modern Dentistry, which contains considerable interesting material. It should be mentioned that in the notes following the articles is one on the Society of Members of the Royal College of Surgeons of England, with an exposition of its aims, and a statement of the chain of events which called it into existence.

British Journal of Inebriety. —The principal feature of the January number is an article by Dr. R. Armstrong-Jones on Drug Addiction in Relation to Mental Disorder. The author considers the question in the light of his experience as an asylum physician, basing his remarks on observations of some 40 cases of drug-takers in whom mental deterioration reached the degree of certifiable insanity. With regard to such cases, as with the similar cases of alcoholic intemperance, the question naturally arises whether the drug habit is to be considered as the cause or the consequence of the mental disorder. Dr. Armstrong-Jones's reply to this question is that while in most, if not in all, instances a certain degree of nervous abnormality must be admitted as an antecedent condition, it is clearly evident, on the other hand, that without the aggravating influence of the intoxication the graver destructive changes in the neurotic organisation would not have occurred at all, or, at all events, would have been much later in developing. And this fact is of practical account, for the reason that abnormal individuals of this class frequently possess, by virtue of their very abnormality, special endowments, notably in the way of artistic and literary aptitudes, which give a high social value to their work. In agreement with the majority of observers, Dr. Armstrong-Jones finds that opium or some derivative of opium, generally morphia, is the most important of the habit-forming drugs. Next in order of frequency come the new synthetic sedatives, amongst which veronal is especially

prominent. In several instances the drug habit appears to have been initiated by the use of quack remedies, such as various patent "headache powders" and "nerve tonics." Most of the patients were brain-workers, and more than one-third of them were doctors or nurses. The average age on admission under asylum care was 40 years for males and 43 for females. With regard to the mental symptoms which the patients presented, the most interesting points to note are the prominence of disorders of conduct and moral sense and the frequency of suicidal tendencies, which were observed in 57 per cent. of the cases. The paper concludes with an emphatic appeal for a more effective control of the sale of dangerous drugs.—Dr. Mary Scharlieb, Sir George Savage, and several other physicians contribute brief comments on the points discussed by Dr. Armstrong Jones, and express their complete concurrence with his plea in favour of legislative action to check the evil of habitual drug-taking.—A short article by Mr. John Newton notes with approval the action of Russia in prohibiting the sale of vodka during the war, and quotes journalistic evidence as to the good effects that have followed this measure.

Knowledge.—A note in the January issue on obtaining chlorophyll and phycoerythrin from red seaweeds appears under the name of Mr. W. B. Grove, and among the correspondence is a letter asking whether it is not possible to find a process by which the wool for woollen fabrics may be made not only aseptic but antiseptic. The query is suggested by the statement that in the present war whenever serge from the clothing is carried into wounds by shell fragments the wound is more septic than is usually the case when it is similarly contaminated by shreds of linen.

PLAGUE INVESTIGATIONS IN INDIA.¹

NINTH REPORT.

THE Advisory Committee appointed by the Secretary of State for India, the Royal Society, and the Lister Institute have recently issued their ninth report on plague investigations in India. In continuation of previous inquiries directed to find out the reasons why some parts of India have suffered less from plague than others, the circumstances of the Madras Presidency were specially investigated. In a previous report the comparative immunity of the city of Madras from plague was considered, and in the present inquiry the conditions of some other parts of the Presidency were examined by Major J. C. Kunhardt, I.M.S., and Captain J. Taylor, I.M.S., who were assisted in the work by five assistant surgeons of the Indian Medical Service.

Epidemiological Observations in the Madras Presidency.

The portions of the Presidency specially inquired into were: (1) the Bellary district, the Mysore plateau, and the Nilgiri Hills, which had suffered severely from plague; (2) a zone, which had suffered but slightly from plague, lying immediately below and around the above-mentioned areas; and (3) the east coast and southern part of the Presidency which had escaped the ravages of the disease. A full description of these areas is given, including their physical features, climatic conditions, distribution of plague, rat and flea prevalence, susceptibility of the local rats to the infection, and other matters. 90 per cent. of the plague deaths in the Madras Presidency were found to have occurred in certain districts which immediately adjoin infected areas in the Bombay Presidency and the State of Mysore. In some years when the temperature has been lower and the humidity higher than normal plague has extended to places immediately adjacent to the infected areas of the Madras Presidency mentioned above, and serious epidemics have developed in certain municipal towns, while the disease in the surrounding villages had generally been mild. Although the disease has invaded the Presidency, it has shown little tendency to spread beyond the limits already indicated. While the districts which suffered the most have the characteristic in common that they are in closest proximity to infected areas outside the Presidency, they also resemble each other in being the most

elevated and coolest parts of the province. A low-lying comparatively hot and dry plain separates the areas at present infected from the more humid and cooler coastal regions. Plague has rarely occurred on the east coast; but on the west coast the seaport towns of Mangalore and Calicut, which have intimate trade relations with Bombay, have suffered from the disease. It appears then that the proximity to infected areas and the facilities for communication with them have been of more importance in determining plague incidence than climate in the Bellary district. Kurnool, with a similar climate but more distant from infected centres, and having also less rapid and efficient means of communication, has suffered but little. On the other hand, plague has been severe in the Nilgiris where the population is scattered and the means of communication are indifferent, but where the climate is very favourable for the spread of the disease. The number of fleas found on rats depends to a great extent on the climate. Experiments showed that rats caught in places in Madras which have been free from plague epidemics are very susceptible to the infection, and this is a favourable factor for the development of plague. The existence of such susceptible rats at present in certain places in India, now that plague has continued there for a series of years, indicates that conditions exist in such places hindering the successful implanting of infection in them. It is difficult to determine what these conditions are, but the investigators are inclined to attribute this comparative immunity to the warm climate obtaining over the greater part of the Presidency. As plague is carried from place to place in the bodies of infected fleas any local conditions affecting survival of these insects, apart from a host, are of importance in determining the liability of the neighbourhood to plague. When separated from their host rat fleas speedily succumb to the combined effects of a high temperature and drying. Unfavourable conditions of this kind are found in the hot and dry plains separating the cooler and moister sea-coast districts from the existing plague infected areas in the Presidency. This region breaks the chain of communication between the infected area on the west and the cooler regions of the east coast. As no satisfactory harbour exists on the east coast of the Presidency where ships can discharge cargoes there are few facilities for the landing of infected rats. The physical features and climate of the Madras Presidency, therefore, have an important influence in limiting the distribution of plague in it.

Experimental Researches.

Dr. Sydney Rowland, of the Lister Institute, carried out a number of valuable researches, details of which are given in the report, relating to plague, including further experiments on vaccination against a body strain of plague; immunisation by pseudo-tubercle; immunisation by living avirulent cultures; the influence of race on the efficiency of antigen; the failure to vaccinate against a virulent body strain even with an antigen prepared as far as possible under body conditions; the protection and curative value against infection with a serum race of plague, of the serum of a horse immunised with nucleo-protein extracted from a strain of plague bacilli propagated on serum protein; and lastly, ultra-violet light as a germicide in the preparation of plague vaccine.

Entomological Investigations.

Mr. A. W. Bacot, entomologist to the Lister Institute, made a series of observations on the length of time that fleas (*Ceratophyllus fasciatus*) carrying bacillus pestis in their alimentary canals are able to survive in the absence of a host and retain the power to re-infect with plague. He also contributes to the report some further notes on the mechanism of the transmission of plague by fleas. He supplies, likewise, some notes, with two illustrative plates, on the development of bacillus pestis in bugs (*Cimex lectularius*) and their power to convey infection. He found that the development of *B. pestis* within the crop of bugs differs generally from that which takes place in the stomach of the flea in respect of its slower and looser growth, this limitation of activity being accompanied by, and possibly due to, the preservation of the structural character of the blood for many days after its ingestion into the crop. The absence of any definite valve between the pump and the crop, together with the looser nature of the growth within the bug, preclude the idea of such mechanical blockage as causes regurgitation and mouth infection by fleas.

¹ The Journal of Hygiene. Plague Supplement IV. Being the Ninth Report on Plague Investigations in India. Issued by the Advisory Committee. The Cambridge University Press. January, 1915. Pp. 109. With maps and charts and 4 plates. Price 7s. net.

THE LANCET.

LONDON: SATURDAY, JANUARY 30, 1915.

The Dearer Loaf.

THE rise in the price of wheat flour from 26s. a sack before the war to the present figure of 45s. is, of course, serious. With the economic conditions which have led to this advance we do not propose to deal beyond expressing a belief that it is due not to a famine but to a shortage of labour and a resulting congestion of shipping. If we are right the remedy is obvious, and its application should be simple and near, and in that case there is no ground for panic, though some apprehension as to immediate effects is reasonable. We look with confidence to the Cabinet Committee, recently appointed to consider the question of food supplies and prices, and presided over by the Prime Minister, to deal promptly with the conditions which are at the root of the present general advances. All medical men and sanitarians are concerned in the question of applying scientific methods with a view of relieving the inconvenience of high prices when they prevail. In a former article¹ we referred to the directions in which our food-supplies could be augmented, and the present seems to be an opportune moment for returning to this subject. We are inclined to think that the time has come to put aside a conventional contempt for or prejudice against so-called substitutes, because it is undoubted that dietetically many of them can effectively replace certain articles of food for which only custom has reserved a place of respect in the common dietary. So long as honest dealing is the rule, substitutes supply a common need in a way not appreciated in all quarters; their use, at any rate, would materially help the householder to keep his domestic expenses down while ministering equally to his physiological needs.

For the present we may defer presenting the case for margarine or dripping as substitutes for butter, or glucose for dear sugar, and confine our attention to the loaf. According to reports from Germany, attempts have already been made in that country to lighten the burden of the dear loaf by putting in it a notable proportion of potato or forms of potato flour. Cheaper admixtures have been proposed, including materials possessing very little nourishing or even energy value at all. We do not think that this country will be reduced to any such expedients. But in the meantime it is just as well to consider how the loaf may be cheapened without

affecting its energy value. To the majority of people bread is not a source of nourishment, but only of energy. To the extreme poor, often limited sadly enough to bread with butter or jam, the nitrogenous contents of the loaf become of very great importance. It does not matter clearly to the man who can add to his bread some cheese or meat whether that bread is rich in nitrogenous material or not. To the poor it matters a great deal, and that is a difficulty to be faced when suggestions are made to cheapen bread by mixing with wheat flour a cheap farinaceous substitute. On this point some interesting observations are made by Dr. E. FRANKLAND ARMSTRONG in an article on the "Chemistry of Wheat and Flour."² He observes that flour is primarily a starchy material, but those characteristic properties which enable it to be made into bread are due almost entirely to the presence of some 10 per cent. of nitrogenous material—the gluten. Consequently from the point of view of the miller and baker gluten is the all-important constituent of flour. But to-day, and somewhat irrationally, gluten has come to be regarded by the would-be food expert as the essential constituent, overlooking the fact that bread is eaten primarily, not as a source of protein, but as an easily digestible, attractive form of starch. The man in the street properly regards bread as equivalent to rice, potatoes, or the like, rather than as a substitute for meat; and it is not surprising, Dr. ARMSTRONG thinks, that the academic reformers have failed to secure followers. The proportion of gluten, we may point out, varies widely in different flours, and "grade" is based largely upon this fact. It would be possible to add to rich gluten flours a proportion of starch, as, for example, cornflour, which is very much cheaper than wheat flour, without materially reducing the nitrogen value when compared with a low-grade wheat flour. The energy value of such a loaf would be quite high, while its nourishing properties would be little impaired. If it should be feasible to introduce, say, 20 per cent. of cornflour in this way into a strongly glutinous flour a very definite economy would be gained, and a loaf decidedly cheaper than the all-wheat-flour loaf would be available for food purposes. There are the probabilities, also, of increasing the "strength" of the gluten as a formative agent by activators such as phosphoric acid or phosphates which are not foreign ingredients of flour; thus it might be possible to increase the addition of cheap starchy materials still further. Since the supply of pure maize starch is practically inexhaustible, and there has been no appreciable rise in its price—certainly no advance anything like that in wheat flour—the attention of our authorities may usefully be drawn to this suggestion. It may be remembered that cornflour is amongst the most easily digested farinaceous foods.

¹ THE LANCET, August 15th, 1914, p. 464.

² Nature, Jan. 7th, 1915.

The movement for "standard" bread has been revived, for it is contended that the loaf production of the country would be increased from 10 to 20 per cent. by using practically the whole of the grain. By the rejection of the germ and by roller methods of refining flour it is urged that much valuable food material is lost. That may be so, but it is doubtful whether the adoption of a standard bread will cheapen the loaf, for the separated germ is an independent source of revenue; and it is not a famine we are confronted with, but dearness arising out of reduced transport facilities. To meet the difficulty we ought to use all ingenuity. For example, the industrial use of low-grade flours for "sizing" and "filling" purposes in the textile trades may want supervision from the food-supply aspect. Although described as low-grade, there can be little doubt that such flours would serve for human food, and they can be replaced for this industrial purpose by "sizes" showing a lower food value. We hope that the attention of the Cabinet Committee appointed to consider the question of food supplies and prices will be directed to the fact that very many thousand tons of wheat flour are annually used for "sizing" purposes in the textile industries. And yet it is well known in the trade that the "sizing" process is by no means dependent upon wheat flour, and that other materials such as the plain starches can be used equally well for the purpose. The Cabinet Committee will have evidence placed before it in many directions of the most interesting and important kind. The result of its labours will be looked for anxiously, and success will follow if the reasons for any measures adopted are scientifically sound, and are explained in simple language to the public.

Medicine and Surgery in War.

It is only natural that at the present time, when all our energies are being devoted to the carrying on of a great war, that the *British Journal of Surgery* should contain little that is not connected in one way or another with war. This month has also appeared the first number of a new medical quarterly, the *Journal of the Royal Naval Medical Service*. This is edited by Fleet-Surgeon R. C. MUNDAY and Fleet-Surgeon W. L. MARTIN, and if from the first number we may gauge the value of the contents of succeeding issues it will form a most important addition to British medical literature. Almost the only article in this number which is not directly concerned with war is that by Staff-Surgeon E. L. ATKINSON, dealing with the British Antarctic Expedition from 1910 to 1913. Even this throws light on matters now affecting both our army and navy, for it treats *inter alia* of frost-bites, various forms of which have been seen so widely of late in our army in Flanders. It is of interest to note that the snow of the Antarctic regions is too cold to be employed for rubbing a frozen nose or ear, though this may be the best treatment

for frost-bite in more temperate climes. One of the most interesting papers is that by Fleet-Surgeon WALTER K. HOPKINS on the action off Heligoland, in which the value of an early and thorough cleansing of wounds is clearly shown; he was on duty 37 hours during and after the action, and evidently did an immense amount of work. The difficulty of localising bullets in the body and limbs is sometimes very great, and the method suggested and described by Surgeon S. BRADBURY is simple and appears to be very useful; it consists essentially in finding the position of the bullet from two aspects and then tracing its real position by means of a strip of lead. This needs rotation of the limb through only a few degrees, and therefore little disturbance of the patient. The paper on the prevention of typhoid fever by Fleet-Surgeon P. W. BASSETT-SMITH is timely, when we find preventive treatment of typhoid fever so violently assailed. Of great interest and importance is the note by Surgeon SHELDON F. DUDLEY on a typhoid carrier; the man was "ship's cooper" and therefore he was brought in contact with articles of food when opening casks; in 13 years he had served in 12 ships, and he had given rise to 53 cases of typhoid fever, of whom 11 had died. Surgeon A. VAVASOUR ELDER has written a valuable paper on ambulance trains, containing an account of Naval Train No. I. In this the cots are movable and not fixed; thus there is much less disturbance of the patient in taking him into and out of the train, and he is much less affected by the jarring of the train. We have said enough to show that in the *Journal of the Royal Naval Medical Service* we have a valuable addition to medicine.

In the January number of the *British Journal of Surgery* are many important papers bearing on the war. Lieutenant-Colonel C. B. LAWSON and Mr. H. BECKWITH WHITEHOUSE have published a communication on the treatment of acute emphysematous gangrene, a disease which has appeared with great frequency in the present war. The treatment employed consists in the injection by means of a Higginson syringe of hydrogen peroxide into the healthy tissues three or four fingers' breadth above the line of advancing gangrene, as shown by the dusky copper-coloured tint of the skin. It is essential that a complete belt of oxygen should be formed above the gangrene, and therefore several openings may be needed, and the dissemination of the oxygen must be aided by kneading and massage. A certain amount of shock is produced, especially if the upper limb is affected; and general anæsthesia, or sometimes spinal anæsthesia, must be employed. As to the results: of 11 cases treated by infiltration 8 recovered, while of the 3 cases not treated by infiltration all died. Especially it seems to follow from these cases that amputation above the gangrene is not only not called for, but that it may be dangerous, for it may prove fatal from shock. Professor TUFFIER, of Paris, has written a short note on military surgery as seen

in the present war, and he lays great stress on the need of using antitetanic serum early in cases of lacerated wounds. The importance of ambulance ships is acknowledged, and therefore we are glad to see two papers on this subject. One is by Mr. SEYMOUR BARLING, who points out that in the cases carried in ambulance ships there is an undue proportion of wounds of the upper and lower limbs, because the more serious wounds of the head, thorax, and abdomen remain in the hospitals of France. Mr. CHARLES A. PANNETT, serving in the hospital ship *Liberty*, discusses in a practical way the fitting up of hospital ships, their personnel, and the transport of wounded. Some very striking skiagrams taken by Captain HERSEL HARRIS, of Sydney, accompany an account of radiography at the Australian Voluntary Hospital, Boulogne. Mr. WILLIAM THORBURN has described the work of the 2nd Western General Hospital and Mr. GILBERT BARLING that of the 1st Southern General Hospital. Mr. D'ARCY POWER has contributed a note of a case in which gold coins were carried into the back by a shell fragment; and Mr. W. BALY PEACOCK has illustrated a case in which a pile of five-franc pieces were deeply scored and bent by a bullet. Lastly, we may mention an account of a visit to some of the military hospitals of Paris and Boulogne, an especially full account being given of the Hotel Majestic in Paris.

It will be seen from these admirable professional journals that the medical profession, both naval, military, and civil, are doing their best for those who have suffered wounds and injuries in this war. The energy with which the writers have managed to find time to put on paper some of the lessons which the war has already taught us is to be highly commended, while it is rapidly becoming clear that the whole subject of military surgery will require overhauling in our text-books.

SCOTTISH POOR-LAW MEDICAL OFFICERS' ASSOCIATION.—The council in its report for the year 1914 states that the number of vacant appointments was not so large as usual, and the correspondence in connexion therewith was therefore considerably less. The new Order issued by the Local Government Board came into force rendering all forms of tuberculosis notifiable. A fee of 1s. is payable by the local sanitary authorities in respect of each case occurring in parish practice, and 2s. 6d. for cases occurring in private practice. The Highlands and Islands (Medical Service) Grant Act came into force, and, from all the council has been able to learn, will do much to render the position of medical officers in the Highlands and Islands much more satisfactory, both in regard to remuneration and status. It is especially noted that medical officers in the crofting counties now have an appeal to the Local Government Board in cases of dispute with their parish councils. From all the information the council has gathered the National Insurance Act appears to be working to the benefit of both Poor-law medical officers and the public in sparsely populated districts. The annual meeting of the association will be held in the St. Enoch Station Hotel, Glasgow, to-day, Friday, Jan. 29th, at 4.30 P.M.

Annotations.

"Ne quid nimis."

THE BELGIAN STUDENT AND THE UNIVERSITY OF CAMBRIDGE.

THE Master of Christ's College, Cambridge, Professor Shipley, writes:—"We are gradually building up a little Belgian University here for students who, for one reason or another, cannot go to the front and for professors who are past the age of serving. Altogether we have between 100 and 200 students and some 15 to 20 professors. Last term we were able to establish effective teaching in four faculties and this term we have increased the number to six. In the Faculty of Medicine we are in need of copies of some standard text-book on human anatomy, preferably Gray's." The University of Cambridge has already found several thousand pounds to support her guests, and will have to find several thousands more to fulfil the obligations which she has undertaken, even if such a term is put to them as next June. It will be necessary to husband resources very carefully, and it is not possible to purchase expensive text-books. It may be that some of our readers have copies of "Gray's Anatomy" lying unused on their shelves. If this is so, the Master of Christ's College would be grateful if they would send them to him at Christ's College Lodge. At present ten or a dozen copies would suffice, we are told.

INSANITY IN EGYPT.¹

AGAIN we have to review a piece of most excellent work carried on in very trying conditions. The report may be said to be a year old, but delay in publication was due to the stress of work which has fallen on Dr. J. Warnock in consequence of the tragic death of his able assistant during the year 1914 and the present apparent difficulty in replacing him. The report is one of the most complete records of the work done and of the various lines of development which can be imagined. It is a puzzle to understand how Dr. Warnock can manage the big asylum and yet find time to enter into minute details. His report is a mine of information which ought to be a field for all workers on developing institutions for the treatment of insanity. We can only shortly refer to a few special points. 1329 cases were treated during the year 1913. Pellagra showed an increase and is said to be the most frequent cause of insanity in Egypt. As in former years, there was excess of admissions over the space for their reception, this excess being most on the men's side. It is sad to notice that for want of accommodation over 200 cases were discharged while still insane, thus leading to returns of insane on the one hand and to criminal acts on the other. The further development of Khanka under Dr. H. W. Dudgeon did a good deal to relieve the acute pressure, and as a result of less crowding the recovery rate was increased. In every part of the report there is evidence of strenuous and earnest work. It is satisfactory to know that the Lunacy Department in Egypt is no longer part of the Public Health Department, but is under the

¹ Reports of Government Hospitals for the Insane at Abbassia and Khanka, Egypt, for 1913.

directorates of Dr. Warnock, and is attached to the Ministry of the Interior. There is a great gain in the addition of skilled English female nurses, as till these were sent women of the lowest class had to be employed. Dr. Warnock and Dr. Dudgeon deserve the highest praise for their work and their report proves this.

EXTRAORDINARY ACCIDENTS.

In our last issue we printed an account by Lieutenant T. O. Thompson, R.A.M.C., of a patient who impaled himself on the handle of a hayfork. The only noticeable lesion was a tear of the scrotum some three inches in length, but the fork handle had passed almost subcutaneously from the scrotum to the inter-clavicular region; it had carried in with it some hay and also a portion of the patient's clothing. The second rib was broken and much sepsis followed. In spite of this severe injury the patient was able to walk three miles home and to drive thence ten miles to the hospital. This case shows well that extensive internal injuries may be present as the result of an accident, and yet the obvious lesions may be small. There is to be noted a curious sameness about lesions resulting from falling upon the handles of hayforks. We may quote one from the *American Journal of the Medical Sciences* for 1853; there was reported a case which was under the care of Dr. Sargent, of Worcester. The patient was a lady 37 years of age, and she slipped down from a hay-loft and impaled herself on the handle of a hayfork; the handle entered the vagina and penetrated 22 inches, and its entrance was stopped only by her feet touching the ground. The handle was immediately withdrawn, and though the patient complained of some pain on the left side of the thorax she was wonderfully little affected. Surgical emphysema developed above the left clavicle, and later it was found that the first rib on the left side was broken. Several other similar cases have been recorded in which impalement has occurred with very little external evidence of injury. In THE LANCET of 1885 we published an interesting case reported by Dr. Shirtliff. A coal porter was found dead on a railway line, showing only bruising of the abdomen and surgical emphysema of both sides of the abdomen and of the right side of the chest, yet at the necropsy the left pleural cavity was found to contain in addition to a large quantity of blood, the torn spleen, the stomach which had been separated both at its cardiac and its pyloric ends, and also a piece of the liver; these had passed through a large hole in the diaphragm. In the right pleural cavity were also much blood and many small pieces of the liver, which had come through a small opening on the right side of the diaphragm. Of the portion of liver which remained in the abdominal cavity much had been reduced to pulp; many of the branches of the mesenteric veins had been torn, and four yards of the intestine had been forced into the scrotum. The bladder was ruptured and the aorta was torn through at the level of the tenth dorsal vertebra, which was fractured; many ribs were also fractured. In this case the amount of external injury was utterly out of proportion with the damage which had been done to internal organs. Every surgeon knows how slight may be the external evidence of injury when a cart-wheel has passed over the abdomen, and

yet a rupture of the intestine may have been caused. Only a week or two ago the daily press reported that a child had been brought to a hospital after having received a blow in the abdomen. As the external injury was slight, and there were no signs that any internal viscus had been damaged, the child was sent home, but later the appearance of peritonitis showed that internal damage had been done, and it was found that rupture of the bladder had occurred. It is difficult to lay down hard-and-fast rules, but it may be said that in all cases when the nature of the accident renders it possible that a severe injury to some internal viscus has occurred, even though no signs of it are present or can be elicited, it is wise to keep the patient under observation, so that at the first sign of internal injury manifesting itself surgical intervention may be available.

SUBJECTS OF AORTIC INSUFFICIENCY IN THE FIGHTING LINE.

It has often been said with truth that our press has not done justice to the achievements of the French in the war. The fault has not been due to any desire to overrate our exploits by underrating theirs, but partly to the secrecy which has largely veiled the military operations and partly to a naturally engrossing interest in the work of our own troops. The want of appreciation is not so much of the valour of our Allies, for which no praise could be too great, but of the extraordinary efforts which they are making to confront a numerically greater military power. The magnitude of these efforts is no doubt obscured by the fact that the French preparations for such a gigantic struggle were insufficient. However, it must be remembered that complete preparedness could be expected only in the Power which planned the war and struck at what she conceived the opportune moment. The extraordinary efforts now being made by France are strikingly shown by the willing and successful part taken in the campaign by the subjects of grave organic disease. We recently called attention to the case of a tuberculous man, the subject of artificial pneumothorax, who successfully went through the arduous campaign in Northern France during the month of August and broke down only during a forced march.¹ He was shown at the Société Médicale des Hôpitaux de Paris by M. Rist. At a subsequent meeting M. Ch. Aubertin reported cases in which the subjects of aortic insufficiency took part in the campaign. Curiously, this flagrant violation of therapeutic rules was unattended by accidents. While engaged during October at the Gare de l'Est in examining the sick and wounded arriving from the front he was surprised to find among them cases of aortic insufficiency. During a fortnight he observed five among a relatively limited number of soldiers. The ages of the patients ranged from 20 to 30 years. One joined the army on his own demand, in spite of the lesion being found at the medical examination; the others did not know of the existence of the disease. They all had taken full part in the campaign, including the battle of the Marne. Some of them had marched as much as 30 kilometres a day with their knapsacks. The trouble which caused them to be sent back as "éclopés" was almost always general fatigue, rarely palpitation. In no case could M. Aubertin find cedema, arrhythmia, dyspnoea,

¹ THE LANCET, Dec. 19th, 1914, p. 1426.

anginal attacks, pulmonary signs, or enlargement of the liver. There was no history of cardiac failure even in the slightest form. Some of them returned to the front. They all showed well-marked aortic insufficiency with manifest hypertrophy of the left ventricle and peripheral signs. In all cases the disease was of rheumatic origin. In the discussion which followed M. A. Siredey and M. de Massary reported cases in which on examination for life insurance they found to their surprise aortic insufficiency in strong and vigorous men given to sports and athletic exercises.

FEBRILE CONDITIONS FOLLOWING OVARIECTOMY.

It has been frequently noticed that women who have been subjected to operative treatment for ablation of the ovaries present a rise of temperature of moderate intensity occurring without rigors and having a characteristic duration of 15 days, after which a condition of complete and absolute apyrexia becomes established. During this febrile period the patients do not experience any general disturbance of importance; having recovered from the operative shock their general condition is satisfactory and cicatrization of the wound takes place normally and without complications. After 15 days the fever disappears and convalescence is established. This thermic rise is met with in cases of simple ovariectomy for inflammatory conditions and also in those in which hysterectomy has been performed together with removal of the tubes and ovaries, but is especially frequent in cases of ovarian sclerosis with marked general nervous phenomena. Dr. P. Azara, in a recent issue of *Il Policlinico*, draws attention to this condition, in which the thermometer does not rise above 38° or 38.1° C., and offers an explanation of it. Chiarugi had already described in his work on the surgery of the thyroid a "thyroid fever" following excision of that organ, and considered it due to the pouring into the circulation of thyroid secretion not yet elaborated, or altered by the pathological condition, or else modified by contact with the air. Whatever clinical analogy exists between thyroid fever and ovarian fever, Dr. Azara is of opinion that Chiarugi's explanation is not applicable to the latter. In the first place, the operative field in ovariectomy is altogether different as regards vascularity to the cervical, and, moreover, it is impossible to admit, however remotely, the pouring into the circulation of "ovarin," which by accumulating in excess in the organism would produce a febrile condition. Another theory, however, may be adduced to explain the ovarian fever. Starting with the conception that the ovaries have an internal secretion, and admitting that the so-called ovarin, a product of the corpus luteum, has a dis-intoxicant action on the organism, it follows that this action would be annulled by ablation of the ovaries and that the febrile condition would come to an end as soon as the organism had re-established a certain equilibrium by means of the compensative action of some other organ with internal secretion.

THE JARISH HERXHEIMER REACTION.

THE Herxheimer reaction consists in a focal, local, and general reaction supervening in syphilis at the outset of treatment with antisyphilitic agents. This reaction, when first described, applied more fittingly to mercury. It consisted in an aggravation of all the signs of the infection

during the first days of treatment after two to five injections or inunctions. Herxheimer believed that the reaction existed solely during the second stage of syphilis, but since it has been more fully studied in relation to its occurrence following salvarsan it has been found that this reaction appears equally readily at all stages. The reaction, too, may be as varied as the forms of syphilis, cutaneous, visceral, or cerebral. Thus the chancre may enlarge rapidly. In the secondary stage there may be arthritis, headache, or even fever and meningitis; it is said that in the secondary stage 63 per cent. have a syphilitic meningitis, shown by leucocytosis of the cerebro-spinal fluid. Amongst tabetics the reaction takes the form of transitory aphasia, acute delirium, or shooting pains; or it may be barely noticeable. It was suggested that some part of the aggravation of symptoms might be due to the development of toxins derived from organisms in the diluting fluid used for the intravenous method, but this does not explain all the facts, as Dr. K. M. Benoit Simon points out in the *Canadian Practitioner and Review* (1914, vol. xxxix., p. 655). The reaction, in view of the gradual accumulation of fatal results after salvarsan (200 up to 1912), may deserve attention. Dr. Simon says that the reaction is proportionate to the intensity of the lesions; it is thus more marked in the secondary stage. It is also proportionate to the dose of the antisyphilitic drug and its specific activity. Two questions regarding the reaction may be asked: is it useful or is it noxious; and if the latter, is it preventable? 1. The reaction is useless—all agree on this; it is also injurious, the danger lying especially in the meningeal response. 2. The reaction is preventable. It is necessary first to seek dangerous localisations of the disease, especially a latent meningitis; lumbar puncture must be performed for the diagnosis of such a latent and potential source of trouble. Secondly, since a first dose must be blindly given, let it be the minimum which has never given accidents—that is, 0.2 gramme salvarsan for an adult—and watch. The temperature and the cerebro-spinal fluid being observed the dose can be increased gradually.

INTRA-ARTICULAR FIXATION OF FRACTURES.

WHILE the value of the fixation of fractures by apparatus inserted in the bone is established it is generally taught that no foreign substance should be inserted into joints. However, it has recently been shown that intra-articular fixation is possible. In the *Maryland Medical Journal* for December, 1914, Professor Nathan Winslow has reported two cases in which he performed this operation. A man, aged 50 years, had a fracture through the head and anatomical neck of the humerus in a bad position which could not be rectified by manipulation. An incision was made midway between the acromion and the coracoid processes extending 7 inches down the arm. The distal fragment was delivered through the incision. Then the head of the bone was separated from its capsule and entirely delivered from the body. The fragments were brought into apposition, but the upper was so shattered that it offered but little surface for plating. After some difficulty a very small plate was insecurely attached to the fragments. It was necessary to pass a wire nail through the articular surface into the shaft of the bone. The capsule was sutured, the wound closed, and

the arm encased in plaster. Sinuses leading to the head of the bone formed, and necessitated a second operation. The previous incision was opened and the plate with three screws removed. The capsule was then opened and the head of the bone disarticulated. Careful search failed to reveal the head of the nail. The sinus in the bone was therefore enlarged and the nail grasped at its point with forceps and pulled out. The sinus was curetted and drained. The patient recovered and had good motion in all directions except elevation. In the second case a coloured girl, aged 3 years, had separation of the lower humeral epiphysis. An attempt at reduction by hyperextension and flexion under ether was attended with indifferent success. An incision was made over the olecranon process down to the bone and the fragments were delivered after much trouble. As no surface presented extra-articularly through which nails could be passed and the fragments did not remain in apposition when released two small wire nails were passed from the articular surface through the epiphysis into the shaft. Three weeks after the operation there was some motion in the joint. The final result cannot yet be stated, but Professor Winslow believes that without operation function would have been seriously impaired. He claims that his cases show that intra-articular fractures which cannot be otherwise treated should be screwed or pegged from the articular surface, that the joint tolerates a foreign body provided infection does not occur, and that this method offers a better prospect than leaving the fragments in bad alignment.

ANÆSTHESIA IN GOITRE OPERATIONS.

THE problem of safe and satisfactory anæsthesia in operation for goitre may present more difficulty to the anæsthetist than is met perhaps in any other class of case. There are, of course, plenty of instances where in the absence of respiratory difficulty from pressure and of all symptoms of hyperthyroidism the choice and administration of the anæsthetic are at least as simple as in any other operation in the neighbourhood of the neck. When, however, there is narrowing of the trachea from pressure, or still more when there are marked tachycardia and other indications of hyperthyroidism, then the question becomes an anxious one. Still more, needless to say, is this the case when the patient presents to a marked degree the signs and symptoms of actual exophthalmic goitre. The mechanical difficulty in these cases may be regarded as that which is most easily obviated. It is, of course, true that any dyspnoea due to mechanical narrowing of the trachea is liable to be increased during anæsthesia by swelling of mucous membrane and congestion of vessels as well as by spasm. The avoidance of all closed methods of administration, however, the preliminary injection of atropine, and a gradual induction usually result in anæsthesia without any increased difficulty in such cases. The mechanical obstruction may be overcome with even greater certainty by the insufflation of ether through a tracheal catheter should the passage to this not be of itself a too difficult achievement. A much more difficult problem than the mechanical one is presented by the nervous condition of some of these patients and by their tendency to syncope during operation, or to an increase afterwards of the tachycardia till the heart finally runs down exhausted by its own rapidity. We do not know the

essential cause of this fatal tachycardia, and cannot even declare positively that it is partly attributable to anæsthesia and not wholly to the effect of manipulation of the thyroid gland with increased entry of its secretion into the circulation. Dr. W. S. Bainbridge, who has recently discussed the question before the American Association of Anæsthetists, believes that fatalities of the kind described are more apt to occur after operations done during general than after those done with local anæsthesia. His preference for local agents in this class of case has the authoritative support of Kocher. The disadvantage of the presence of consciousness on the part of these sensitive, excitable patients is, however, not to be overlooked, and indeed Dr. Bainbridge himself points out that operating with local anæsthesia throws great strain upon the surgeon, and not infrequently is associated with discomforts, if not with pain, on the patient's part. These things, however, cannot be allowed to weigh seriously against any marked superiority from the point of view of safety, and if it can be clearly shown from comparing large numbers of cases that general anæsthesia involves the occurrence of more fatalities than local, then preference should surely be given to the latter method. The use of rectal and of infusion methods is obviously applicable to this class of case. The considerable inconvenience of the former and the oozing associated with the latter are, we imagine, their chief detriments. Moreover, in the case of infusion, any considerable addition to the amount of fluid in the circulation would not appear to be without detriment in the type of patient under consideration. Crile's well-known process of "stealing the thyroid" may meet the temperamental difficulties of the patient very well, but we cannot believe that sufficient calm cannot be induced, if it is possible at all, by quiet, tactful, and deliberate handling of the patient at the time of induction of anæsthesia without rehearsals.

THE ETIOLOGY OF CONGENITAL HYDROCEPHALUS.

THE old Neapolitan custom of treating chronic hydrocephalus by mercurial friction and the often favourable result obtained thereby, very justly gave rise to the suspicion that this morbid condition might be due to hereditary syphilis. It was rarely possible, however, to adduce evidence of specific infection in the parents. Recent biological methods have now proved that almost invariably chronic hydrocephalus owes its origin to parental syphilis. Former observers had already shown that among those diseases to which the congenital syphilitic is subject hydrocephalus occupies the chief place after idiocy and imbecility, but when Wassermann's test was applied to the etiology of hydrocephalus negative results seemed to discountenance any relation between it and hereditary syphilis. In 1912 Cannata, having made observations on 12 cases of congenital hydrocephalus, came to the conclusion that hereditary syphilis plays a more important part in the pathology of chronic internal hydrocephalus than has usually hitherto been admitted. In a new periodical issued by the medical staff of the lunatic asylum at Catanzaro, under the direction of Professor Frisco, two well-marked and instructive cases are recorded; in one the Wassermann reaction was positive both in the mother and child who was second born following a premature birth of a dead foetus. In the second case the reaction was positive in father, mother, and child.

INTRAVENOUS TREATMENT OF ARTHRITIC PROCESSES.

THERE are certain positive advantages obvious to the intravenous methods of giving drugs. One is precision and accuracy of dosage with the certainty that the agent used will exert its effect unchanged by the disturbing factors which are necessarily associated with the ordinary absorptive processes from the gastro-intestinal tract. The other is rapidity of action. Advantages accruing from precision of dosage are especially seen in the salvarsan treatment, the necessity for such accuracy being obvious. The advantage of quickness of effect is most conspicuously noted, perhaps, in the intravenous injection of strophanthus in urgent cases of heart failure due to auricular fibrillation. It is natural that intravenous medication should have been tried in other conditions, and some success is claimed for this method of giving salicylates for refractory cases of acute rheumatism. Dr. Albert Comstock records the details of this form of treatment in certain articular diseases in the *New York Medical Journal* (vol. c., 1914, p. 1113). He uses the following prescription:—

R. Guaiacolis—sodii salicylatis, ana gr. 640.
Glycerin gr. 640.
Aq. destill. et steril. 2000 c.c.

The conditions for which its intravenous use is indicated are acute articular rheumatism, acute and chronic muscular rheumatism, and acute gouty arthritis. The patient is suitably prepared and an aperient given. The quantity of the solution, at 100° to 110° F., used is 250 c.c. (*sic*). The vein is usually dissected out and the fluid slowly allowed to flow in. The first subjective sign noted is a tingling sensation, with a coal tar taste in the mouth, due to the guaiacol. The face then becomes suffused and congested and perspiration is free. There is generally slight delirium, which may last for half an hour. The pain, however, is relieved in a wonderful manner, and within 24 hours the patient is better. This relief is most marked and most permanent in acute rheumatism; in 50 cases there has been no bad result. In muscular rheumatism the result is not so good, and in the chronic form two or three injections may have to be made at intervals of three or four days. For cases where salicylates given in the ordinary way cannot be tolerated by the stomach or in particularly obstinate cases this intravenous method is recommended.

At a meeting of the Council of the Royal College of Surgeons in Ireland held on Jan. 21st, Mr. F. Conway Dwyer, President, in the chair, Sir Arthur Chance was elected to represent the College at the meetings of the General Medical Council.

Dr. George Lovell Gulland, physician to the Edinburgh Royal Infirmary, has been appointed to the Chair of Medicine in the University of Edinburgh, vacant through the resignation of Professor John Wyllie.

At a meeting of the Senate of the University of London held on Jan. 27th Dr. Edward Barclay-Smith, M.A., M.D., B.C. Camb., was appointed to the University Chair of Anatomy at King's College, London, and Dr. Edward Provan Cathcart, M.D., Ch.B., D.Sc. Glasg., was appointed to the University Chair of Physiology (as from April 1st next), tenable at the London Hospital Medical College.

THE CHADWICK LECTURES ON WAR AND DISEASE.¹

THE second of three Chadwick lectures was delivered at the Royal Society of Arts on Jan. 22nd by Colonel F. M. SANDWICH, M.D. The chair was occupied by Sir FREDERICK TREVES, and there was a large attendance.

Presentation of Chadwick Prizes and Medals.

An interesting function preceded the delivery of the lecture—namely, the presentation to Fleet-Surgeon Cleveland Munday and Colonel Heaton Horrocks, R.A.M.C., of the Chadwick Medal and £50 for distinguished services in promoting the health of the men in the navy and army respectively.

Sir ARTHUR MAY, in thanking the Chadwick trustees for the honour they had conferred on the navy, said that when he entered the navy in 1878 the rate of sickness was 47 per 1000; to-day it was only 25, and the invalid-rate was now 15 as against 35 in 1878. In the latter year the death-rate in the navy was 6 per 1000, whereas to-day it was 2. The improvement was due to sanitation and the education of the men, for every sailor in the service attended lectures on personal hygiene.

Sir ALFRED KEOGH emphasised the importance of the health of the troops in the maintenance of an army's fighting strength, and said that Colonel Horrocks was the officer most responsible for the very satisfactory health of our army now in France, and his record extended back many years, the abolition from Malta of undulant fever having been due to him. Formerly there were in that island 600 or 700 men stricken with that disease; and hospitalisation alone cost £15,000 a year. To-day there was no fever. Colonel Horrocks had also done much steady work in improving the sanitation of camps and barracks.

Colonel SANDWICH then delivered a lecture on

The South African and the Russo-Japanese Campaigns.

He said the Japanese army medical officers held that there were three grades of illness: (a) comprising wounds or disease caused by hardships and exposure incidental to warfare; (b) diseases, accidents, or injuries to which the soldier might succumb in circumstances beyond his control; and (c) diseases brought about by disobedience to orders, immorality, the eating of unwholesome food, and the drinking of dirty water. The victim of the latter received no sympathy. Before the Russo-Japanese War the individual Japanese soldier was made to understand how largely his health contributed to the fighting efficiency of the army, and this was an important factor in the avoidance by that nation of serious epidemic disease during the campaign. This lesson had had its good effect on our own army, and the French admired the British troops in this war for their hygienic observances. No illness so dogged the steps of an army as did typhoid fever. For many years water contamination was thought to be the cause, but epidemics had occurred where the water-supply was excellent, and dust and flies had obviously to be blamed. He particularised the case of Quetta, which had an admirable water-supply. A striking instance was that which occurred in the camp at Modder River in the South African campaign. The winds covered the food with grit, and flies multiplied rapidly. The first case of typhoid fever was recognised on Dec. 18th, 1900, and by the end of that month 18 cases had been admitted into hospital. The Highland Brigade camp suffered the least because it was in a wind-protected locality. There was also great danger from the handling of food by typhoid carriers, some of whom had had the disease so slightly that it escaped recognition, especially in view of the necessary huddling of the men together in quarters during war time. The typhoid death-rate in civil life varies from 5 per cent. to 20 per cent.; among armies in war time the rate is much higher, owing to the absence of the best nursing facilities. In the South African War we lost 8022 from this disease, 19,454 were invalided, and 30,208 were either returned to duty or otherwise discharged. The mortality from typhoid fever in the war exceeded in number that of the men killed in action. Each

¹ A report of the first lecture appeared in THE LANCET of Jan. 23rd, p. 105.

case was under treatment an average of 56 days, and was necessarily a source of danger during the whole of that period. The conditions encountered by the army were greatly aggravated in the beleaguered city of Ladysmith, where the half-starved garrison had to draw its water-supply from a river known to be contaminated. During the 120 days of siege there were 1280 cases of typhoid fever, with 360 deaths; and 1841 cases of dysentery, with 105 deaths. When our troops entered Bloemfontein they found two churches filled with Boers suffering from typhoid fever. During the forced marching tents had to be pitched for the relief of about 130 men who collapsed from the effects of the heat. On Feb. 16th one brigade was marching and fighting for more than 15 hours. When the battle of Paardeburg began the men had been marching 24 hours, during which some had nothing to eat. The fighting lasted 12 hours. When, a week later, Cronje surrendered, among his force were 160 sick and wounded, including 10 cases of enteric fever. In 20 weeks from March to July there were 1134 deaths in Bloemfontein, of which 85 per cent. were due to typhoid fever. War could never be waged on land by hygienic methods; the supreme object was to defeat the enemy; but in anti-typhoid inoculation we had now a means of circumventing the danger. It was very gratifying to find that the soldiers were becoming more and more convinced of the efficacy of this preventive measure, and the vast majority of those on active service were now so protected. Typhoid fever was found to be five or six times as common in the non-inoculated as in the inoculated. At Avignon (France) in 1912 typhoid fever broke out in barracks containing 2053 men, of whom 1366 were protected. Of the 687 unprotected there were 155 who had the disease and 21 died, while among the protected there was not one case. In 1913 the French Senate resolved that the protective treatment should be made compulsory throughout the army. In Canada, among the camps of the Canadian Pacific Railway, 3500 men were protected, and only two cases of typhoid fever occurred; while among 4500 non-protected men there were 228 cases. In the face of such facts it was difficult to understand those who were trying to persuade the soldier not to submit to it. The lecturer proceeded to deal next with the case of dysentery and cholera, describing the course of these diseases and their method of spread, remarking that in the South African War there were 38,108 cases of dysentery,² the chief source having been the water-supply. In her war with China, Japan had 155,140 cases of dysentery, with 38,000 deaths. On Oct. 22nd last 98 cases of cholera were reported in Austria and 231 in Hungary. Cholera had also appeared in some of the Russian towns. Dr. Fleming and others were sent from this country to the Russian side to ascertain what particular kind of cholera bacillus was present; they had now returned and were, he believed, engaged in preparing a vaccine. He had words of warm commendation to those British officers, including Sir Francis Wingate, who showed such heroism in combating the Egyptian cholera epidemic. In the Greek army the mortality among unvaccinated cholera patients was 275 in each 1000 cases of the disease; in the vaccinated 102 per 1000 cases. The British authorities were providing in every possible way against the invasion of cholera among our troops. The lecture was illustrated by very informing slides, including photo-micrographs of disease bacilli.

Sir FREDERICK TREVES, in proposing a vote of thanks to Dr. Sandwith, emphasised what he said regarding the attitude to be adopted towards typhoid fever in war. The education of the soldier on the question was most important. The second line of attack was the improvement of the sanitary condition of the army. Speaking as a member of the Sanitary Committee at the War Office, he could say there had never been a time in the history of any campaign when the wounded or sick soldier had been better looked after. But this was not all, for even medical men, versed in every detail of personal care and sanitation, had, when in charge of typhoid camps, contracted the disease. A further precaution was necessary—namely, inoculation. Since the present war began there had been in the British Expeditionary Force only 212 cases of typhoid fever, 201 of them in unprotected men, for 173 of them had not been inoculated at all; only 11 of this number had been fully inoculated. Not one inoculated man in the whole force had died from the

disease. In the face of such facts those who tried to persuade the men not to submit to the measure were playing into the hands of the enemy. He also alluded, with much satisfaction, to the universality of motor transport in the present operations near the front. At the actual firing line, however, horse transport could not be dispensed with.

The vote of thanks to the lecturer was very heartily accorded.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff-Surgeon: N. B. V. Jacob to the *Pembroke*, additional, for disposal. Temporary Surgeons: H. O. Blanford to the *Roxburgh*; S. L. Harke to the *Impregnable*; and A. M. Gray to the *Woolwich*.

The undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet:—John Grandisson Watkins, Purser Davies, Lionel Frederick Strugnell, and David Sutherland.

The following Surgeon Probationers, R.N.V.R., have been entered as Temporary Surgeons, R.N.:—H. G. Moser and L. S. Fry.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers: G. Pearson to the *Blake*, additional, for the *Goldfish*; and W. L. Hunter.

ROYAL ARMY MEDICAL CORPS.

Honorary Major Guy N. Stephen to be temporary Lieutenant-Colonel (dated Jan. 10th).

To be temporary Captains:—Dated Dec. 29th, 1914: Charles Edward Forbes Mouat-Biggs. Dated Jan. 4th: Robert Sturgeon Cocke.

Peter Macdiarmid is granted temporarily the honorary rank of Captain (dated Jan. 27th).

To be temporary Lieutenants:—Dated Dec. 9th, 1914: Arthur Vernon Stocks. Dated Dec. 18th, 1914: James Stewart Hall and Hugh Llewellyn Aphorpe. Dated Dec. 22nd, 1914: James Edward Cook. Dated Dec. 29th, 1914: Frederick Pearson Fisher. Dated Dec. 31st, 1914: John Samuel Martin, John Gibson, and Ronald Bute Macfie. Dated Jan. 4th: Arthur Hyde Greg. Dated Jan. 5th: James Edmund Rutherford. Dated Jan. 6th: Charles Edward Pepper. Dated Jan. 7th: James Donald Finlay, Andrew Grant, George Douglas Sherwood, Thomas Lister Llewellyn, Bernard Creasy Ewens, John Laing Annan, Wilfred Garton, George Henry Steven, Dudley Forde, Albert Ernest Hodgson, James Joseph Keirans, and John Lang. Dated Jan. 8th: Henry Percy Harpur and James Fettes.

SUPPLEMENTARY TO REGULAR UNITS OR CORPS.

Royal Army Medical Corps.

The undermentioned to be Lieutenants (on probation):—Francis Antrobus Duffield, John Joseph Molyneux, Frederic Sanders, George Stephen Pirie, Edwin John Bradley, Frank Oppenheimer, James Walker Wood, and George Macdonald Scott.

TERRITORIAL FORCE.

Honourable Artillery Company.

"A" Battery, 1st City of London Horse Artillery: Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Richard J. Reece is seconded.

Royal Army Medical Corps.

1st Wessex Field Ambulance: Walter Fitzpatrick (late Captain, Royal Army Medical Corps, Territorial Force) to be Captain (temporary).

2nd Highland Field Ambulance: Lieutenant James A. Stephen to be Captain (temporary). Thomas Stewart Slessor to be Lieutenant.

3rd Southern General Hospital: Lieutenant-Colonel Horatio P. Symonds resigns his commission on account of ill-health.

2nd West Riding Field Ambulance: Hartas Foxton to be Lieutenant.

1st London (City of London) Sanitary Company: Robert Robison to be Lieutenant.

West Lancashire Casualty Clearing Station: Lieutenant William N. W. West-Watson, from 3rd West Riding Field Ambulance, to be Lieutenant.

West Riding Casualty Clearing Station: David Rutherford Cramb to be Lieutenant.

Sanitary Service: Thomas Hamilton Ward (late Lieutenant, Royal Army Medical Corps, Territorial Force) to be Captain, whose services will be available on mobilisation.

Attached to Units other than Medical Units.—Major Alexander Leitch resigns his commission on account of ill-health, and is granted permission to retain his rank and

² THE LANCET, Sept. 5th, 1914, p. 639.

to wear the prescribed uniform. Surgeon-Captain Thomas Duncan Greenlees (late Grahamstown (South Africa) 1st City Volunteers) to be Major (temporary). Captain William E. Rielly, from 2nd London Field Ambulance, to be Captain. Lieutenant John B. Bate to be Captain (temporary). Lieutenant James P. N. Casey, from 1st London Field Ambulance, and Hugh Gilbert Bruce to be Lieutenants.

ORDER OF ST. JOHN OF JERUSALEM.

The King has sanctioned the promotion to Knight of Grace of Lieutenant-Colonel William Ernest Jennings, I.M.S.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8172 births and 6259 deaths were registered during the week ended Saturday, Jan. 23rd. The annual rate of mortality in these towns, which had been 21.3, 19.4, and 18.8 per 1000 in the three preceding weeks, further fell in the week under notice to 18.0 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. The annual death-rate last week ranged from 6.6 in Eastbourne, 8.0 in Ilford, 9.6 in Coventry, 10.5 in Acton, and 10.9 in Southport and in Blackpool, to 25.3 in Gateshead, 27.1 in Cambridge, 31.9 in Merthyr Tydfil, 36.3 in Great Yarmouth, and 37.5 in Gillingham.

The 6259 deaths from all causes were 286 fewer than the number in the previous week, and included 479 which were referred to the principal epidemic diseases, against numbers declining from 575 to 454 in the three preceding weeks. Of these 479 deaths, 206 resulted from measles, 93 from whooping-cough, 83 from diphtheria, 62 from infantile diarrhoeal diseases, 23 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.4, or 0.1 per 1000 more than in the previous week. The deaths attributed to measles, which had been 269, 183, and 195 in the three preceding weeks, further rose to 206 last week, and caused the highest annual death-rates of 2.1 in Newcastle-on-Tyne, 2.2 in Ealing, in Wolverhampton, and in Preston, 2.5 in Merthyr Tydfil, 3.1 in Gateshead, 3.2 in Rotherham, 3.3 in Grimsby, 3.7 in Plymouth, and 4.0 in Wigan. The deaths referred to whooping-cough, which had been 80, 93, and 76 in the three preceding weeks, rose to 93 last week, and included 22 in London, 8 in Bristol, 5 each in Willesden, Liverpool, and Merthyr Tydfil, 4 in Stoke-on-Trent, and 3 each in Gloucester, Nottingham, Newcastle-on-Tyne, and Cardiff. The fatal cases of diphtheria, which had been 89, 77, and 63 in the three preceding weeks, rose to 83 last week; of these 11 each occurred in London and Birmingham, 7 in Bristol, 5 each in Manchester and Sheffield, 4 each in Warrington and Leeds, and 3 each in Bradford and Stockton-on-Tees. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 86, 84, and 75 in the three preceding weeks, further declined to 62 last week, and included 14 in London, 8 in Birmingham, and 3 each in Preston and Gateshead. The deaths referred to scarlet fever, which had been 31, 35, and 34 in the preceding three weeks, fell to 23 last week, of which 5 occurred in Liverpool and 4 in London. The fatal cases of enteric fever, which had been 20, 15, and 11 in the three preceding weeks, were 12 last week, and included 2 in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3952 in the eight preceding weeks, had further fallen to 3836 on Saturday last; 308 new cases were admitted during the week, against 436, 321, and 338 in the three preceding weeks. These hospitals also contained on Saturday last 1643 cases of diphtheria, 109 of measles, 56 of enteric fever, and 35 of whooping-cough, but not one of small-pox. The 1597 deaths from all causes in London were 104 fewer than in the previous week, and corresponded to an annual death-rate of 18.4 per 1000. The deaths referred to diseases of the respiratory system, which had been 562, 497, and 472 in the three preceding weeks, further fell to 417 in the week under notice, and were 3 below the number in the corresponding week of last year.

Of the 6259 deaths from all causes in the 96 towns, 252 resulted from different forms of violence and 545 were the subject of coroners' inquests, while 1667 occurred in public institutions. The causes of 62, or 1.0 per cent. of the total deaths, were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 59 other smaller towns. Of the 62 uncertified causes 13 were registered in Birmingham, 6 in Liverpool, 4 each in Stoke-on-

Trent, Preston, and Gateshead, and 2 each in Ilford, Dudley, Bootle, Bolton, and Manchester.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1258 births and 977 deaths were registered during the week ended Saturday, Jan. 23rd. The annual rate of mortality in these towns, which had been 20.5, 24.5, and 22.8 per 1000 in the three preceding weeks, further declined to 21.7 per 1000 in the week under notice. Among the several towns the death-rate ranged from 12.5 in Motherwell, 14.2 in Coatbridge, and 15.2 in Falkirk, to 25.3 in Aberdeen, 25.9 in Dundee, and 29.4 in Perth.

The 977 deaths from all causes were 50 fewer than in the previous week, and included 98 which were referred to the principal epidemic diseases, against 117 and 92 in the two preceding weeks. Of these 98 deaths, 58 resulted from whooping-cough, 16 from scarlet fever, 8 from diphtheria, 8 from infantile diarrhoeal diseases, 7 from measles, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.2, against 1.4 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had increased from 23 to 56 in the four preceding weeks, further rose to 58 last week, of which 37 occurred in Glasgow, 11 in Dundee, 6 in Edinburgh, and 2 in Motherwell. The deaths referred to scarlet fever, which had been 17, 13, and 9 in the three preceding weeks, rose to 16 last week, and included 8 in Glasgow and 3 each in Aberdeen and Paisley. The fatal cases of diphtheria, which had been 14, 21, and 10 in the three preceding weeks, further fell to 8 last week, of which 4 were registered in Glasgow and 2 in Edinburgh. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 11, 17, and 7 in the three preceding weeks, were 8 last week, and included 3 in Glasgow. The 7 deaths referred to measles comprised 6 in Dundee and 1 in Glasgow, and were equal to the number recorded in each of the two preceding weeks. The fatal case of enteric fever was registered in Glasgow.

The deaths referred to diseases of the respiratory system, which had steadily increased from 154 to 275 in the six preceding weeks, fell to 238 in the week under notice; 30 deaths resulted from different forms of violence, against 32 and 35 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 665 births and 557 deaths were registered during the week ended Saturday, Jan. 23rd. The annual rate of mortality in these towns, which had been 27.8, 26.5, and 24.4 per 1000 in the three preceding weeks, further fell to 24.0 per 1000 in the week under notice. The annual death-rate last week was equal to 27.7 in Dublin (against 18.4 in London and 22.2 in Glasgow), 20.2 in Belfast, 37.4 in Cork, 19.0 in Londonderry, 12.2 in Limerick, and 26.6 in Waterford, while in the 21 smaller towns the mean death-rate was 21.9 per 1000.

The 557 deaths from all causes were 11 fewer than the number in the previous week, and included 35 which were referred to the principal epidemic diseases, against 38 and 48 in the two preceding weeks. Of these 35 deaths, 15 resulted from measles, 9 from whooping-cough, 4 from infantile diarrhoeal diseases, 3 from scarlet fever, 2 from enteric fever, and 2 from diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against 1.4 and 2.2 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 9, 6, and 12 in the three preceding weeks, further rose to 15 last week, and included 11 in Belfast. The deaths referred to whooping-cough, which had been 7, 11, and 10 in the three preceding weeks, were 9 last week, and comprised 6 in Dublin, 2 in Belfast, and 1 in Cork. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had increased from 9 to 14 in the four preceding weeks, fell to 4 last week, and included 2 in Dublin. The 3 deaths attributed to scarlet fever occurred in Belfast, the deaths from diphtheria in Dublin and Sligo, and the fatal cases of enteric fever in Dublin and Limerick.

The deaths referred to diseases of the respiratory system, which had been 162, 139, and 164 in the three preceding weeks, fell to 137 in the week under notice. Of the 557 deaths from all causes, 177, or 32 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 28, or 5.0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1.0 per cent.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING DECEMBER, 1914.
(Specially compiled for THE LANCET.)

CITIES AND BOROUGHES.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhoea and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON...	4,516,612	—	2416	951	—	78	6	24	512	5	7	3999	9.2	—	—	224	47	101	49	112	542	1.3	7246	16.7
West Districts.																								
Paddington	142,055	—	71	17	—	3	—	—	16	—	—	107	7.9	—	—	1	1	2	—	6	10	0.7	204	14.9
Kensington	170,817	—	75	24	—	—	—	—	16	—	—	115	7.0	—	—	5	3	2	—	1	11	0.7	246	14.9
Hammermith	124,750	—	108	39	—	1	—	1	14	—	—	163	13.6	—	—	17	1	5	4	2	30	2.5	200	16.5
Fulham	158,849	—	108	45	—	5	—	5	23	—	—	186	12.2	—	—	10	5	6	6	6	33	2.2	243	16.5
Chelsea	63,791	—	31	8	—	4	—	—	2	—	—	45	7.4	—	—	1	—	—	—	—	1	0.2	101	15.7
City of Westminster	152,346	—	87	31	—	7	2	—	10	—	—	137	9.4	—	—	2	2	4	1	1	12	0.8	214	15.4
North Districts.																								
St. Marylebone	112,892	—	43	20	—	4	—	—	6	—	—	73	6.7	—	—	—	—	4	1	4	10	0.9	152	14.3
Hampstead	86,731	—	21	11	—	1	—	2	6	—	—	41	4.9	—	—	—	—	—	—	—	—	—	105	13.3
St. Pancras	212,497	—	93	44	—	4	—	2	17	—	—	160	7.8	—	—	12	2	4	2	4	24	1.2	376	18.4
Islington	324,764	—	184	46	—	2	—	2	41	—	—	275	8.3	—	—	12	4	4	4	8	32	1.0	541	17.0
Stoke Newington	50,454	—	25	7	—	—	—	—	5	—	—	37	7.6	—	—	—	2	—	—	—	2	0.4	79	15.5
Hackney	223,724	—	76	39	—	4	2	1	22	—	1	145	6.8	—	—	44	2	3	1	9	59	2.8	392	18.4
Central Districts.																								
Holborn	45,861	—	15	6	—	—	—	—	1	—	—	22	5.0	—	—	—	1	1	1	—	3	0.7	95	21.7
Finsbury	83,212	—	37	23	—	1	—	—	12	—	—	73	9.1	—	—	—	3	1	5	1	10	1.3	187	23.1
City of London	17,129	—	10	6	—	3	—	—	2	—	—	21	12.8	—	—	—	—	—	—	1	1	0.6	26	16.5
East Districts.																								
Shoreditch	108,869	—	37	41	—	5	1	—	19	—	—	103	9.9	—	—	6	—	4	1	6	18	1.7	207	20.5
Bethnal Green	127,662	—	83	48	—	2	—	—	32	—	—	165	13.5	—	—	11	1	5	—	4	21	1.7	226	19.2
Stepney	273,265	—	227	112	—	11	—	2	41	—	1	394	15.0	—	—	18	7	12	—	11	49	1.9	525	20.9
Poplar	160,222	—	58	20	—	—	—	—	24	—	—	102	6.6	—	—	6	—	2	—	9	17	1.1	321	20.7
South Districts.																								
Southwark	186,941	—	100	25	—	1	—	2	33	1	1	163	9.1	—	—	18	3	5	3	8	37	2.1	349	19.6
Bermondsey	124,213	—	41	20	—	3	—	—	7	1	—	72	6.0	—	—	6	—	—	2	6	15	1.3	204	17.1
Lambeth	296,724	—	147	78	—	2	—	—	19	2	3	251	8.8	—	—	26	1	6	3	6	42	1.5	501	17.3
Battersea	167,338	—	87	20	—	3	—	—	14	—	—	124	7.7	—	—	6	2	2	1	2	13	0.8	229	14.4
Wandsworth	338,998	—	184	48	—	2	—	2	32	—	—	268	8.2	—	—	1	—	5	5	5	16	0.5	388	12.0
Camberwell	262,020	—	131	41	—	1	1	3	30	—	—	207	8.2	—	—	12	2	4	1	7	27	1.1	351	13.8
Deptford	109,182	—	82	26	—	1	—	1	18	—	1	129	12.3	—	—	1	2	4	5	1	13	1.2	175	16.5
Greenwich	96,037	—	61	20	—	—	—	—	13	—	—	94	10.2	—	—	—	2	3	1	1	7	0.8	184	19.7
Lewisham	172,433	—	128	43	—	4	—	—	19	—	—	194	11.7	—	—	—	1	5	1	3	10	0.6	226	13.5
Woolwich	122,836	—	66	43	—	4	—	1	18	—	—	133	11.3	—	—	9	—	8	1	—	19	1.6	199	17.3
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous group. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

VITAL STATISTICS OF LONDON DURING DECEMBER, 1914.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 9.2 per 1000 of the population, estimated at 4,516,612 persons in the middle of last year; in the three preceding months the rates were 11.6, 14.0, and 12.5 per 1000 respectively. The lowest rates last month were recorded in St. Marylebone, Hampstead, Hackney, Holborn, Poplar, and Bermondsey; and the highest rates in Hammersmith, Fulham, the City of London, Bethnal Green, Stepney, and Deptford. The prevalence of scarlet fever showed a marked decline from the high numbers in the two preceding months; the greatest proportional prevalence of this disease last month was recorded in Hammersmith, Fulham, Stepney, Deptford, and Lewisham. The Metropolitan Asylums Hospitals contained 4431 scarlet fever patients at the end of last month, against 4561 and 4956 at the end of the two preceding months; the weekly admissions averaged 445, against 618 and 661 in the two preceding months. Diphtheria also was less prevalent than in either of the two preceding months; this disease was proportionally most prevalent last month in Hammersmith, Fulham, Finsbury, the City of London, Shoreditch, Bethnal Green, Stepney, and Woolwich. There were 1663 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 1489 and 1630 at the end of the two preceding months; the weekly admissions averaged 177, against 213 and 247 in the two preceding months. The prevalence of enteric fever, which had shown a decline in November, increased again last month; the greatest proportional prevalence of this disease was recorded in Chelsea, the City of Westminster, St. Marylebone, the City of London, Shoreditch, and Stepney. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 65 and 63 at the end of the two preceding months, rose again to 68 at the end of last month; the weekly admissions averaged 10, against 11 and 9 in the two preceding months. Erysipelas was proportionally most prevalent in Fulham, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Deptford, and Woolwich. The 24 cases of puerperal fever notified during the month included 5 in Fulham, 3 in Camberwell, and 2 each in Hampstead, St. Pancras, Islington, Stepney, Southwark, and Wandsworth. The 5 cases of cerebro-spinal meningitis included 2 in Lambeth, where 3 of the 7 cases of poliomyelitis also occurred.

The mortality statistics relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the populations of the several boroughs. During the five weeks ending Jan. 2nd the deaths of 7246 London residents were registered, equal to an annual rate of 16.7 per 1000; in the three preceding months the rates were 15.5, 14.1, and 14.6 per 1000 respectively. The death-rates last month ranged from 12.0 in Wandsworth, 13.3 in Hampstead, 13.5 in Lewisham, 13.8 in Camberwell, 14.3 in St. Marylebone, and 14.4 in Battersea, to 19.6 in Southwark, 19.7 in Greenwich, 20.5 in Shoreditch, 20.7 in Poplar, 20.9 in Stepney, 21.7 in Holborn, and 23.1 in Finsbury. The 7246 deaths from all causes included 542 which were referred to the principal infectious diseases; of these, 224 resulted from measles, 47 from scarlet fever, 101 from diphtheria, 49 from whooping-cough, 9 from enteric fever, and 112 from diarrhoea and enteritis among children under 2 years of age. No death from any of these infectious diseases was recorded last month in Hampstead; among the other boroughs they caused the lowest death-rates in Chelsea, Stoke Newington, the City of London, Wandsworth, and Lewisham; and the highest rates in Hammersmith, Fulham, Hackney, Southwark, Stepney, Shoreditch, and Bethnal Green. The 224 deaths from measles were 35 above the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Hammersmith, Hackney, Bethnal Green, Southwark, and Lambeth. The 47 fatal cases of scarlet fever were 28 in excess of the corrected average, the greatest proportional mortality from this disease being recorded in Fulham, Stoke Newington, Finsbury, and Stepney. The 101 deaths from diphtheria were 48 above the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, St. Marylebone, Shoreditch, Bethnal Green, Stepney, Deptford, and Woolwich. The 49 fatal cases of whooping-cough were 19 fewer than the corrected average; the highest death-rates from this disease last month were recorded in Hammersmith, Fulham, Finsbury, and Deptford. The 9 deaths from

enteric fever were 6 below the corrected average, and included 2 in the City of Westminster. The mortality from diarrhoea and enteritis among children under 2 years of age was proportionally greatest in Paddington, Hackney, Shoreditch, Stepney, Poplar, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases was 25 per cent. above the average.

IRISH MEDICAL ASSOCIATION AND THE CASE OF MR. NATHANIEL MAYNE.—At a meeting of the Council of the Irish Medical Association held last week a resolution was passed unanimously, protesting against the attempt of the governing body of the County Longford Infirmary to dismiss Mr. Mayne from the office of surgeon to the infirmary, and declaring that in the opinion of the Council Mr. Mayne had acted properly and prudently and in accordance with the rules of the institution.

ROYAL MEDICAL BENEVOLENT FUND.—The annual general meeting of subscribers to this fund will be held at 15, Wimpole-street, W., on Tuesday, Feb. 9th, at 4 p.m. The chair will be taken by the President, Sir John Tweedy, LL.D., F.R.C.S. Eng.—At the last meeting of the committee 22 cases were considered, and grants amounting to £202 voted to 19 of the applicants. An annuity of £20 was also made to one of the applicants. The following is a summary of the cases relieved:—

Wife, aged 48, of M.R.C.S. Eng. who practised at Chesham. Was deserted by her husband in 1905. Has three children, the youngest at Epsom College, others at school. Eyesight defective. Only income about £25 per annum. Previous relief £14. Voted £12 in 12 instalments.—Widow, aged 74, of M.R.C.S. Eng. who practised at Brintree. Lives with married son, who has large family and only a small income. No income of her own and unable to work. Was elected to an annuity of £20 per annum. Previously relieved, £2.—Widow, aged 66, of M.R.C.S. Eng. who practised at Heywood, Lancs. Has acted as cook and nurse, but finds it difficult in consequence of age to obtain work. Previous relief, £2. Voted £12 in 12 instalments.—Widow, aged 30, of M.B., B.S. Lond., R.A.M.C. who was killed at the front. Since husband's death has undergone severe operation and quite unable to work at present. Only income War Office pension. Voted £15 towards convalescence.—Widow, aged 67, of M.D. St. And. and F.R.C.S. Eng. who practised at Kidderminster. Present distress caused by the depreciation of securities and the death of her sister with whom she lived. Health bad. Voted £10 in two instalments.—Widow, aged 34, of M.R.C.S. Eng. who practised at Swansea and died in 1914. Left her totally unprovided for. Right side paralysed. One daughter aged 6 years. Lives with mother whose means are very limited. Voted £12 in 12 instalments.—Widow, aged 62, of L.R.C.S. Edin. who practised in Brixton. Present distress caused by depreciation of her dividends and being unable to let her furnished house. Health too bad to allow her to work. Voted £10 in two instalments.—Daughter, aged 59, of M.R.C.S. Eng. who practised at Battle. Unable to work owing to chronic rheumatism. Lives with sister, who is also badly off. Relieved 31 times. £242. Voted £12 in 12 instalments.—Widow, aged 77, of M.R.C.S. Eng. who practised at Leamington. Tries to earn a little by taking in lodgers, but owing to age not able to do much. Has the Old Age Pension. Has seven children, none of whom can help. Relieved three times, £36. Voted £12 in 12 instalments.—Widow, aged 59, of L.R.C.P. Irel. who practised at Buckley. Health very indifferent. Only income a pension from another charity of £25. Relieved seven times, £84. Voted £12 in 12 instalments.—Daughter, aged 31, of M.R.C.S. Eng. who practised at Wolverhampton. Suffers from Graves's disease and unable to undertake any permanent work. Relieved seven times, £46. Voted £12 in 12 instalments.—Widow, aged 58, of M.R.C.S. Eng. who was an annuitant of the Fund. Eldest son used to keep the home but has joined the army and unable to do much. Other son's earnings very much reduced. Relieved once £10. Voted £2, with leave to apply again.—Daughter, aged 62, of M.R.C.S. Eng. who practised at Watford. Health bad. Only income £20 from another charity and a little from sewing. Has to assist to keep an invalid brother. Relieved eight times, £93. Voted £15 in 12 instalments.—Widow, aged 58, of M.R.C.S. Eng. who practised at Sydney, N.S.W. Has own house, which is heavily mortgaged and has been empty for five years. Only daughter a professional singer, but owing to the war cannot obtain engagements. Relieved three years ago, £10. Voted £10 in two instalments.—Daughter, aged 70, of M.R.C.S. Eng. who practised at Stoke Newington. Lives with two sisters and they try to make a living by taking in boarders, but in consequence of the war have lost several foreign boarders. Relieved twice, £24. Voted £18 in 12 instalments and recommended for an annuity.—Widow, aged 68, of M.R.C.S. Eng. who practised at Maidstone. Earns her living by taking in paying guests, but in consequence of the war has lost two. Only income from friends, which is uncertain, about £20. Relieved four times, £30. Voted £12 in 12 instalments.—Daughter, aged 60, of M.R.C.S. Eng. who practised at Greenwood Hantspills. Health very bad, and lost all her money invested in an apartment house. Earns a little by needlework and friends provide food. Relieved four times, £48. Voted £12 in 12 instalments.—Widow, aged 65, of L.S.A. who practised at Battersea. Lost all capital in investments. Takes in a boarder when she can get one and earns a little by needlework. Relieved twice, £24. Voted £12 in 12 instalments.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos-street, Cavendish-square, W.—Queen Amélie will preside at the annual general meeting of the Royal Medical Benevolent Fund Guild, at the Royal College of Physicians of London, on Thursday, Feb. 4th, at 3.30 o'clock.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Medical Officers of the Army Reserve.

HERE, as everywhere else, the war is the only subject of real interest. The Italian army is mobilised, and for the extra medical service required the medical officers of the reserve of the 1877-78 classes have been called up. These are professional men, 36-38 years of age, and they are rather indignant that the younger classes should not have been called up before them. They protest, too, at the inferior position in which they find themselves, being allowed only the rank of subalterns whatever their professional attainments may be, and so junior in rank to officers of perhaps 24 years of age; in fact, a professor may find himself junior in rank to, and under the orders of, his own pupil. They find themselves on an equality with and obliged to "tutoyer" young subalterns of the other arms of the service, often 20 years their juniors. The duties of orderly officer fall chiefly upon them. They are losing the practices which they have built up by many years of work, and in return are paid by the Government at the rate of 5.53 lire, or 4s. 6d. per day. They demand that they should be allowed the rank to which the majority of the regular officers of their year have attained, while allowing the latter seniority in such rank. Their grievances seem natural enough; do they find an echo among the largely increased staff of the British Royal Army Medical Corps?

Treatment of Tetanus.

The treatment of tetanus is at this moment a very living question. *Il Policlinico* (Sez. Prat., anno xxi., fasc. 51) returns once more to its advocacy of Baccelli's treatment, or the method of the Roman school. This consists in the injection, either subcutaneously or intramuscularly, of carbolic acid. Solutions varying in strength from 1 to 5 per cent. were used in the cases quoted in the paper, and the quantity of carbolic acid given in 24 hours varied between 20 and 80 centigrammes. For example, one case was treated by subcutaneous injections of 2 c.c. of a 3 per cent. solution every three hours, increased later to a similar quantity of 5 per cent. solution; another received from 24 to 34 cgm. of carbolic acid in 2 per cent. solution daily; another from 40 to 70 c.c. of 1 per cent. solution per diem intramuscularly. Baccelli's method is said to have given extremely encouraging results up to now among the wounded in France. It is well tolerated and under easy control, and has the great merit of simplicity.

Heliotherapy and the Treatment of Wounds.

The wonderful results of sun treatment in the mountain resorts of Switzerland have set the profession in Italy thinking how they may make use of the sun, which is theirs so freely. A start in the right direction was made years ago with the institution of seaside and mountain colonies for delicate children in the summer months. The number of these is on the increase every year, and some of the seaside colonies are now kept open in winter as well as summer. A more direct use of the sun's rays is made by Professor Poli, who has opened this year a sunny terrace overlooking the sea at Genoa for the treatment of children with surgical forms of tuberculosis. An extension of

this idea is advocated along the Italian Riviera, and it is claimed that not only are cases of surgical tuberculosis benefited by this heliotherapy but that experiences after the Balkan War have demonstrated beyond doubt the curative effects of the sun's rays in suppurating wounds such as those produced by shrapnel. I fancy that no one would deny that heliotherapy has at least as much effect upon the organisms of suppuration as upon tubercle bacilli, and that most would agree that it is likely to be as safe and quick as, and a great deal more pleasant than, the ordinary methods of treatment of suppurating wounds.

White Slave Traffic.

The Neapolitan police seem to have awakened recently to the flagrant violation of the laws relating to the abuse of young girls. In one night they raided 15 so-called hotels and pensions, restored 73 young girls between the ages of 13 and 19 to their families, and arrested 280 individuals as "sfruttatori di minorenni." The large number of people implicated has made a great impression and drawn public attention to the scandal. Something, it is felt, must be done, and not only in Naples but for all the south of Italy, where the trade in young girls and their export to foreign countries are carried on upon a large scale and with impunity.

Jan. 22nd.

Correspondence.

"Audi alteram partem."

BELGIAN PRACTITIONERS AND THE MEDICAL REGISTER.

To the Editor of THE LANCET.

SIR,—In pursuance of the Order in Council dated Jan. 7th, 1915, by which the Medical Act, 1886, was made applicable to the kingdom of Belgium, the Executive Committee of the General Medical Council has passed the following resolution:—

That so long as the Order in Council of Jan. 7th, 1915, remains in force any person who produces evidence satisfactory to the Registrar that he has obtained the degree of Doctor of Medicine in any of the Belgian Universities of Brussels, Ghent, Liège, or Louvain, and is legally authorised to practise medicine, surgery, and midwifery in Belgium, and who satisfies the Registrar as to the other particulars specified in Section 12 of Part II. of the Medical Act, 1886, shall be entitled to be registered in the Foreign List of the Medical Register.

It is necessary, according to the provisions of the Medical Act, 1886, that any person applying to be registered in respect of the degree of M.D. of any of the above-mentioned universities should produce to the Registrar documents or certificates as follows: (1) Evidence that he possesses the diploma of M.D.; (2) satisfactory evidence of identity; (3) satisfactory evidence of good character; and (4) satisfactory evidence: (a) that the applicant is not a British subject, or (b) that being a British subject, the said diploma was granted to the holder at a time when he was not domiciled in the United Kingdom or in the course of a period of not less than five years, during the whole of which he resided out of the United Kingdom; or he was practising medicine or surgery or a branch of medicine or surgery in the United Kingdom on

Jan. 7th, 1915, and that he had continuously practised the same either in the United Kingdom or elsewhere for a period of not less than ten years immediately preceding Jan. 7th, 1915.

Application should be made to the Registrar for a form for the use of Belgian practitioners seeking registration. Belgian practitioners who fulfil the prescribed conditions may thereupon, without further examination, be inscribed in the British Register, and acquire all the rights and privileges of duly qualified British practitioners.

The documents, the prescribed fee (Five pounds), and the cost (One shilling) of the Government stamp, should be transmitted to the Registrar of the General Medical Council, 299, Oxford-street, London, W.—I am, Sir, yours faithfully,

A. J. COCKINGTON,

Jan. 27th, 1915.

Acting Registrar.

THE PREVENTION OF FROST-BITE.

To the Editor of THE LANCET.

SIR,—There are some points in the prevalence of frost-bite affecting the Expeditionary Force which are worthy of careful consideration with a view to prevention. In the first place it is not mere cold that produces frost-bite. The attacks with our soldiers are limited almost entirely to the feet, from the minor degrees in the form of chilblains through all the further stages up to positive gangrene. If we look to the accounts of Arctic and Antarctic experience we find frost-bite mostly in exposed parts—face and hands—and chiefly accounted for by the prevalence of wind in association with low temperature. When the feet have been attacked it has mostly been in association with wet. In the trenches, in which frost-bite is almost exclusively met with, the conditions present are those of water or mud slush with low temperature; a temperature, however, far above the highest met with in the Arctic or Antarctic winters. Further conditions to which frost-bite is attributable are long maintenance of the upright posture with general fatigue and lowered vitality from exposure. It is obvious, however, that amongst the important contributory causes must be mentioned: (1) any tightness of leg gear causing a constriction of circulation; and (2) ill-fitting boots having the same effect. If the precautions mentioned by Mr. A. W. Mayo-Robson as laid down in the Army Medical Regulations be observed these latter causes will be obviated.¹ No doubt sound and more or less water-tight boots are of some value; but it practically is the case that the soldiers are oftentimes well over their boots in water or slush, so that the soundness of the boot in this respect is of little avail. It has been suggested that the men in the trenches should wear water-tight thigh boots something after the fashion of those used by our sewer inspectors. But it should be remembered that the men must be fit at any moment for skirmishing, quick marching, or hand-to-hand fighting, in all of which foot agility is of the utmost importance. In a charge or bayonet encounter foot work is as important as in boxing or fencing, and to handicap feet and legs by cumbrous boot gear would be to sacrifice the men's efficiency and often their lives to the comfort of their feet.

Returning to the etiology of this matter, I would point out that frost-bite in the present war

is due (1) to the feet becoming sodden with water and their circulation and vitality thus depressed; and (2) to long exposure to a considerable degree of cold, a degree, however, to which the dry foot would be resistant. In the rational treatment of such cases with a view to prevention it is of the first importance to render the feet less permeable to moisture. This indication may be best met by their anointment with some greasy material with low hygroscopic properties. It is well known to swimmers that anointing with fatty or oily material enables them to withstand cold, but the value of an application of low hygroscopic power for persons whose feet are passively subjected for hours or days to water or half-frozen slush is, perhaps, not sufficiently realised.

Mr. Squire, of Oxford-street, has prepared a foot ointment answering the four requirements: (1) resistant to water penetration; (2) mildly stimulating and antiseptic; (3) readiness for use; and (4) not too expensive. After a good deal of trouble and investigation he has produced an ointment of purified suet, camphorated and with 5 per cent. eucalyptus oil, supplied on the pattern of a shaving stick in a metal case with smooth rounded edges. The solid ointment is pushed up from the bottom, and when rubbed over the surface leaves a smooth application of the ointment. A special advantage of this ointment is that its absorbing power for water is only 5 per cent., whereas most other greasy materials, such as lard, lanoline, &c., have an absorbent power for water of about 30 per cent. Mr. Squire has also prepared on the same lines a second ointment from palm oil sufficiently stiffened for the purpose but containing only vegetable ingredients, so as to meet the requirements of our Indian troops, to whom all animal fats are repugnant.

A limited trial of the first ointment has given so far satisfactory results, but it is, of course, too early to draw practical conclusions. Meanwhile "the rain it raineth every day" and the cold is bitter for our officers and men.

I am, Sir, yours faithfully,

Portland-place, W., Jan. 25th, 1915. R. DOUGLAS POWELL.

FAITH AND ASTIGMATISM.

To the Editor of THE LANCET.

SIR,—I envy Mr. C. E. Pronger and Mr. Ernest Clarke, whose communications have recently appeared in THE LANCET. What a happy state of mind to be in to be sure! To be able to cure or relieve headache, neuralgia, sleeplessness, fits, and a tendency to insanity and suicide, *et hoc genus omne*, and all with just a pair of spectacles, cylindrical lenses for choice, varying in strength from half a diopter to one-eighth thereof. I wish I could do it myself. Years ago, when at Wiesbaden, the present Professor Pagensteher told me that many of the English-speaking patients who consulted him, when asked what was the matter replied, "Oh, I have astigmatism," so much so that he called it the English complaint. They do not seem to be troubled so much with the same affection on the continent, or perhaps their "Kultur" does not extend to the diagnosis thereof. It is the lower grades of astigmatism which are said to cause all these dire symptoms, and the uneven contraction of the ciliary muscle, in its effort to equalise matters and overcome this, is the *fons et*

¹ THE LANCET, Jan. 16th, 1915, p. 119.

origo malorum; where the astigmatism is greater no effort of the ciliary muscle can overcome the irregularity and so it gives up the effort as a bad job and does not try. Now astigmatism is for the most part congenital, and one would naturally be inclined to think that the ciliary muscle, trained to this slight unevenness of focusing from its earliest youth, would have got used to it, and that the higher centres would not have been so much upset thereby.

My own position is often difficult. Being fairly broad-minded, disinclined to split hairs, and taking an all-round point of view of things, I have gradually come to the conclusion that human nature is very complex, that other organs and structures besides the eyes are to be found above the collar-bone, and that a pair of spectacles, however rose-coloured, will not cure all the ailments to which our flesh is heir. Over and over again have I had patients sent to me by physicians—who seem to have swung of late years from one extreme of the pendulum to the other—with symptoms of headache and neuralgia, &c., in and about the eyes and their neighbourhood, in whom, after carefully working out their refraction, I have found $\frac{1}{2}$ or $\frac{1}{4}$ diopter of astigmatism, and in view of their symptoms have corrected this and ordered them glasses for constant wear, but I have so often failed in relieving the symptoms for which they consulted me that I have got into the habit of reminding them that the proof of the pudding is in the eating thereof, that the slight error of focus I have discovered may be a factor in the production of their symptoms or not; that if it is, the glasses will be calculated to relieve their symptoms, and in that case they had better continue to wear them constantly, but failing relief after a fair three months' trial they can leave them off or only use them for near work and reading. But, *me miserum*! how few have been relieved thereby? Logically, where are we to draw the line? If we are to relieve $\frac{1}{8}$ diopter of astigmatism, why not $\frac{1}{80}$?

But here, again, another difficulty steps in. Personally, I find many—perhaps most—patients unable to appreciate the effect of a $\frac{1}{4}$ diopter cylinder; it makes very little, if any, difference to them whether it is held vertically or horizontally, &c. What, then, about a cylinder of much less strength? Still, I really believe that some neurotic or neurasthenic people are honestly relieved by weak cylindrical or spherical lenses, and I have in view the case of a friend—an optician, strange to say—who at times wore weak $\frac{1}{4}$ diopter cylindrical lenses and claimed he obtained relief thereby. I did not prescribe them; he was gouty, very excitable, neurasthenic, the subject of cancer, and by no means a teetotaler. It is mainly or entirely in people with a crank or neurotic or neurasthenic, who admit that these trifling corrections relieve them. They are people who are easily impressed, and coming into contact with ophthalmic surgeons of marked personality, after being examined in the dark room and with various weird apparatus and instruments, are told they have astigmatism—a word which, like that blessed one Mesopotamia, appeals to their feelings—and that glasses will in all probability relieve or cure them. A positive is worth three negatives. Thereupon they go off with a prescription with a clock-work face and strange figures and hieroglyphics to some optician, who probably makes the remark that the glasses the doctor has prescribed are very unusual—as indeed they are, if they are $\frac{1}{8}$ diopter

cylinders—the result being that they feel something is being done for them, and their symptoms are relieved forthwith, and they think and say they derive much comfort from their glasses—for a time, when they either relapse and go elsewhere, or meanwhile their general health improves, or they get married or take up Christian Science or something, and all goes well; they, at any rate, put down their cure to the oculist. But the end is not always so favourable, and the patient drifts from one ophthalmic surgeon to another.

I have no objection whatever to any oculist impressing a neurotic patient with weak spherical or cylindrical lenses—with such patients, as in love and war, it is fair to adopt almost any means to give them relief—but I do object to anyone thinking or assuming that it is the weakness of the cylindrical or spherical lens that does the trick. I have arrived at this conclusion after an experience of over 28 years' considerable practice as an ophthalmic surgeon amongst all sorts and conditions of patients, and the longer I live the more convinced I am of the correctness of the old Latin maxims, "*Media sunt simillima veris*" and "*In medicotutissimus ibis*"; and now, to add to my doubts and fears and misgivings, comes this letter from Dr. A. S. Gubb pointing out, as it does, that insomnia is due to many trifling causes, amongst which a loaded rectum plays a not inconsiderable part. Really, it will in the future be difficult to know which end of the patient to begin with, and whether a pair of spectacles or a glycerine suppository should have the priority, for many of these patients are the subjects of constipation.

I am, Sir, yours faithfully,

Norwich, Jan. 17th, 1915.

S. JOHNSON TAYLOR, M.B.

THE PHARMACOPŒIAL DOSE.

To the Editor of THE LANCET.

SIR,—Mr. W. J. Uglow Woolcock's suggestion in his letter in THE LANCET of to-day's date relative to unusually large doses in prescriptions of powerful drugs has the great disadvantage of acquainting the patient or his friends that an unusually large dose of an active drug is prescribed. My practice is to mark the quantity both on the right and left of the drug, and if necessary to underline the quantity marked on the left of the name of the drug.

I am, Sir, yours faithfully,

Dublin, Jan. 23rd, 1915.

GEORGE FOY.

PHYSIOLOGY AND MORALITY.

To the Editor of THE LANCET.

SIR,—In his admirable lecture published in your issue of Jan. 23rd Mr. D'Arcy Power, discussing the best means of preventing the spread of venereal disease, says:—

Knowledge, too, is a powerful help. The physiology of the generative system is no more a mystery than the physiology of digestion or respiration, and there is no reason why it should not be explained in a scientific manner as a part of a course of biology. Let the women teach the women

I would ask, in reference to this suggestion, whether a knowledge of the physiology of the generative system has had any influence in preventing the male medical student in the past from exposing himself to venereal infection? My experience has been that the smattering of physiology taught to nurses and masseuses is worse than useless. In this, as in other things, a little knowledge is a

dangerous thing: it often leads them to talk a lot of sorry nonsense to their patients.

Speaking for myself, I can truly say that my knowledge of physiology has not in any way helped me to lead a healthy life. All that the public need know in regard to the preservation of health can be set down in a surprisingly small compass. To attempt to disseminate a knowledge of physiology—be it of the generative or any other system—is, in my belief, to mix up the issues in a jangle of mere words, and to obscure what is after all transparently simple. I am, Sir, yours faithfully,

Wimpole-street, W., Jan. 23rd, 1915. HARRY CAMPBELL.

ANATOLE FRANCE AND MORALITY.

To the Editor of THE LANCET.

SIR,—Mr. D'Arcy Power's lecture in your issue of to-day is admirable in every way, but it is strange to find the works of Anatole France recommended as food for the chaste.

The finest stylist of present-day French literature is one of the "unmorals," and there are only one or two of his books which do not contain descriptions of intimate amatory relationships, clothed in beautiful but none the less smutty language. France is an artist pure and simple, and decidedly not for *la jeune fille* or her brother. These remarks apply to the works in the original. I have no knowledge of the English translations, but have often heard them described as poor.

I am, Sir, yours faithfully,

A. M. ROSS, M.B.

Waterfoot, near Manchester, Jan. 23rd, 1915.

EMETINE INJECTIONS IN AMŒBIC DYSENTERY.

To the Editor of THE LANCET.

SIR,—It may be of interest to record results of the treatment of amœbic dysentery by hypodermic injections of emetine hydrochloride in an out-patient practice. In the space of 11 months 27 cases were treated and in all cases the symptoms quickly disappeared and the patients were so struck with the result that they came back for more injections even after they were apparently cured. We commenced with injections of gr. $\frac{1}{2}$ which was given on dispensary days—i.e., three times a week—but soon the dose was raised to gr. $\frac{1}{4}$, gr. $\frac{3}{8}$, and lastly to gr. 1. The majority of cases received gr. 1 at each injection with most satisfactory results. Gr. 1 gave the best and quickest result and no untoward result was ever complained of or observed. It is interesting to note that once, when the stock of hypodermic tabloids had run short, a half-grain tabloid of emetine was given internally, and when the patient was next seen he reported that on his way home he had severe vomiting and diarrhoea. As all were treated as out-patients they could not be restricted to a liquid diet. All the cases except one were chronic, lasting from one month to four years. The number of motions averaged about ten in the 24 hours; two had 16 and one 30 motions. All patients showed remarkable improvement after the first or second injection; the hæmorrhage greatly decreased or stopped altogether, straining was much less or quite gone, the number of motions considerably diminished, and the stools became fæcal. The pallor disappeared, and the pained expression of the face entirely altered after a few injections. As a rule no other drug was given, and

the majority of cases had no symptoms of the disease after four or five injections. In the case which had lasted four years all symptoms disappeared after the third injection of 1 gr. emetine hydrochloride. Two cases had recurrence of their symptoms and came back for treatment about three weeks after the cessation of the emetine injections. One of these cases had a third relapse after six months, when he attended the dispensary for a week, and had three 1 gr. injections and was apparently cured. We are, Sir, yours faithfully,

F. J. HARPER, M.B.

W. B. HADDAD, M.D.

Church Missionary Society, Achmoun Menoufeyah, Egypt.

LEECHES AND THE WAR.

To the Editor of THE LANCET.

SIR,—Our country has been for many months suffering from a serious shortage of leeches. As long ago as last November there were only a few dozen leeches left in London, and they were second-hand.

Whilst General Joffre, General von Kluck, General von Hindenburg, and the Grand Duke Nicholas persist in fighting over some of the best leech areas in Europe, possibly unwittingly, this shortage will continue, for we have for many years largely depended on importations from France and Central Europe.

In November I made some efforts to alleviate the situation by applying to America and Canada, but without success. I then applied to India, and last week, owing to the kindness of Dr. Annandale, director of the Indian Museum at Calcutta, to the officers of the Peninsular and Oriental Steamship Company, and to Colonel A. Alcock, M.D., of the London School of Tropical Medicine, I have succeeded in landing a fine consignment of a leech which is used for blood-letting in India. It is true that the leech is not the *Hirudo medicinalis* of our pharmacopœias, but a different genus and species, *Limnatis granulosa*. Judging by its size, always a varying quantity in a leech, we may have to readjust our ideas as to a leech's cubic capacity, yet I believe, from seeing them a day or two ago, they are willing and even anxious to do their duty. They have stood the voyage from Bombay and the changed climatic conditions very satisfactorily, and are in a state of great activity and apparent hunger at 50, Wigmore-street, London, W.

It is true that leeches are not used to anything like the extent they were 80 years ago—Paris alone about 1830 employed some 52 millions a year—but still they are used, though in much smaller numbers. It may be of some consolation to my fellow-countrymen to know that our deficiency in leeches is more than compensated by the appalling shortage of sausage-skins in Middle Europe. With true German thoroughness they are trying to make artificial ones. I am, Sir, yours faithfully,

A. E. SHIPLEY.

Christ's College Lodge, Cambridge, Jan. 27th, 1915.

THE ASYLUM SERVICE AND BELGIAN REFUGEE DOCTORS.

To the Editor of THE LANCET.

SIR,—It is stated in the *Daily Telegraph* of Jan. 20th that the Commissioners hope soon to have Belgian doctors available for employment in the asylum service. Both editorially and in many

letters to your columns it was shown that long before the war was thought of British practitioners in sufficient numbers could not be found to take up these posts owing to their many disabilities. Are the Commissioners—or, to give them their latest title, the Board of Control—to import "foreign cheap labour" for this purpose? We all, I hope, sympathise with our Belgian brethren, but it is a serious menace indeed if they are to be used to cheapen the service at the expense of Britishers. It may be the asylum service to-day, but be sure it will not stop there.

I am, Sir, yours faithfully,

Jan. 21st, 1914.

VERB. SAP.

THE "SHORTAGE" OF DOCTORS.

To the Editor of THE LANCET.

SIR,—There is one phrase used by Dr. Robert R. Rentoul in his letter in THE LANCET of Jan. 16th which I cannot allow to pass unchallenged—viz., "The school medical officer whose duties are very light." I am a school medical officer to a county education authority. My experience as a medical man extends over 17 years, and includes hospital and other institution appointments, a ship's surgeoncy, active service, and private practice at home and abroad.

I can definitely state that my present duties are not light, and, further, that the circumstances attendant on professional work—travelling, &c.—have never been so continuously arduous.

My card is enclosed.

I am, Sir, yours faithfully,

Jan. 24th, 1915.

M.B.

THE medical profession will note with satisfaction that Sir Donald MacAlister, K.C.B., President of the General Medical Council, and Dr. A. E. Shipley, F.R.S., Master of Christ's College, Cambridge, have been appointed members of the new Royal Commission to inquire into the methods of making appointments and promotions in the Civil Service.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton House, Westminster, on Jan. 20th, Sir Francis H. Champneys being in the chair. A number of midwives were struck off the roll, the following charges amongst others having been brought forward: The midwife did not wash the patient's external parts with soap and water or swab them with an efficient antiseptic solution before making the first internal examination, as required by Rule E. 7 (a); neglecting to provide for the comfort and cleanliness of the patient, as required by Rule E. 11; that when called to a confinement the midwife did not take with her the appliances and antiseptics required by Rule E. 2. That notwithstanding having been warned and with intent to avoid supervision and inspection by the local supervising authority the midwife abstained from notifying the authority of her intention to practise as a midwife; not being scrupulously clean in every way, and not keeping her nails cut short, as required by Rule E. 1; administering vaginal injections by means of an appliance used for giving enemata, contrary to Rule E. 2; not taking and recording the pulse and temperature of patients, as required by Rule E. 13, and making false records of the temperature of patients. The placenta and membranes not having been completely expelled within two hours after the birth of the child, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E. 20 (3); neglecting to stay with the patient until the expulsion of the placenta, as required by Rule E. 6, and not keeping the register of cases as required by Rule E. 23.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE subscriptions to the Fund have been fairly maintained during the week, the international interest in the Fund has been shown in several ways, and contributions or communications from the colonies and provincial centres have been promising. The first meeting of the Scottish Committee, whose personnel was published in THE LANCET and British Medical Journal at the beginning of the month, took place last Saturday, and the support at once given is sure to be maintained. We announced last week a notable contribution from the doctors in Dunedin, who have sent a lump sum of 100 guineas to the Fund, a donation which has been received with particular pleasure.

In the Sheffield district all the medical men have been given notice of a general meeting to be held at the University of Sheffield with the object of forming a local committee.

A meeting in aid of the Fund will be held in the College of Medicine, Newcastle-on-Tyne, on Feb. 17th, at 4 P.M., when Professor Jacobs, of Brussels, will deliver an address. All medical men and pharmacists in the districts of Northumberland, Durham, and Yorkshire are invited to attend, and a local committee will be appointed at the meeting.

THE CENTRAL COMMITTEE.

A meeting of the central committee was held on Thursday, Jan. 21st, at the offices of the British Medical Association, when Sir Rickman Godlee explained the satisfactory results of personal visits to the American Ambassador and Mr. Herbert Hoover in respect of the distribution of the parcels of medical stores sent out to Belgium through the medium of the International Committee for Relief in Belgium. American assistance is taking a similar form to that devised by the Central Committee. Sir Rickman Godlee also reported that a box of instruments which had been selected by Mr. Meredith Townsend and himself, with assistance in certain directions, was packed ready for the Belgian doctors, since which definite instructions have been received from the International Committee with regard to the transmission of the box. At this meeting of the Central Committee Dr. H. A. Des Vœux, the honorary treasurer, announced that the total amount subscribed was over £5000, though part of this sum had not been received yet by the treasurer.

THE SCOTTISH COMMITTEE.

The first meeting of the Scottish Committee was held in the Royal College of Physicians, Edinburgh, on Jan. 23rd, Dr. J. Barlow, President of the Royal Faculty of Physicians and Surgeons of Glasgow, being in the chair. The meeting confirmed the appointment of the secretaries and treasurers who had previously been provisionally appointed. An executive committee was appointed consisting of the presidents of the three medical corporations, the three secretaries of the Scottish Committee—viz., Dr. R. Cranston Low, Dr. J. Walker Downie, and Mr. J. Rutherford Hill—and Mr. J. L. Ewing, LL.D.

Dr. J. Adams intimated that the British Medical Association was willing and eager to do all in its power to aid the Fund, and it was agreed that the

organisation of the Association should be utilised so as to get into touch with the members of the medical profession all over Scotland. Similarly, Dr. Ewing put the organisation of the Pharmaceutical Society at the disposal of the committee, so as to press the claims of the Fund on the members of the pharmaceutical profession.

The executive committee was authorised to draw up a circular containing an appeal for contributions and send it to every medical man and pharmacist in Scotland. It was announced that up to the present subscriptions amounting to £257 had been received in sums varying from 1 to 20 guineas.

Contributions are being received by the treasurers Dr. Norman Walker, 7, Manor-place, Edinburgh; Dr. R. McKenzie Johnston, 2, Drumsheugh-gardens, Edinburgh; Dr. W. G. Dun, 15, Royal-crescent, Glasgow, W.; and Mr. J. Rutherford Hill, Resident Secretary, Pharmaceutical Society, Edinburgh.

THE BIRMINGHAM COMMITTEE.

The activity of the Birmingham Committee is another feature to which attention may be called. A local committee has been formed here with the following as a strong executive: Mr. Gilbert Barling, M.B., F.R.C.S., Vice-Chancellor of the University (Chairman); Dr. Purslow, President of the Birmingham Branch of the British Medical Association; Mr. Christopher Martin, M.B., F.R.C.S., President of the Birmingham Medical Institute; Professor Kauffmann, President of the Midland Medical Society; Dr. Lilley, Chairman of the Central Division of the Birmingham Branch of the British Medical Association; Professor Saundby; Sir Thomas Barclay, J.P.; Mr. E. W. Mann, B.Sc., F.I.C., President of the Birmingham Pharmaceutical Association; Mr. J. Poole; Mr. J. A. Radford; Mr. F. Smith, Honorary Secretary of the Birmingham Pharmaceutical Association; and Mr. J. Wakefield. An eloquent circular has been distributed in the district calling attention to the Central Committee which has been formed in London, composed of representative English doctors and pharmacists, to raise money for the immediate relief of members of these professions who are remaining in Belgium, acting in coöperation with a Belgian Committee having similar aims. Professor Saundby, Mr. Gilbert Barling, and Sir Thomas Barclay have joined the Central Committee already. The circular of the Birmingham Committee recapitulates the chief points in the speech made by Professor C. Jacobs, of Brussels (head of the Red Cross Society in Belgium), at the meeting of the Edinburgh Obstetrical Society on Dec. 9th, 1914. Professor Jacobs's story loses nothing in terror from condensation, and it is not surprising that the Birmingham circular should have met with immediate response.

"Subscriptions for any amount," says the circular, "will be gratefully accepted, but only actual payments can be acknowledged. Cheques or postal orders should be sent to Dr. Saundby, 140B, Great Charles-street, Birmingham, or to Mr. F. Smith, 221, Soho-road, Handsworth, who are acting as joint honorary treasurers and secretaries. They should be drawn in favour of the 'Belgian Doctors' and Pharmacists' Relief Fund' and crossed 'Lloyds Bank.'"

DANISH UNION OF DOCTORS.

The following is an analysis of the subscriptions which have been received from this society through Dr. V. Christophersen, who is acting as honorary secretary to the Danish Fund:—

	Kr.		Kr.
Ugeskrift for Læger	100	Herr C. G. Hedegaard	20
Herr C. Mundt	20	Herr J. A. Bang	10
Herr F. Sadolin	10	Herr L. Möller	20
Herr T. C. Vöhtz	100	Herr W. Jessen	10
O. K.	100	Herr H. Bing	20
Herr M. Krag	5	Herr S. Monrad	50
K. B.	5	Herr B. Meyer	20
Herr H. Adersen	20	Herr Dehlholm	25
Herr A. J. Mathiesen	10	Herr V. Poulsen	50
Herr Frock-Jansen	20	Herr E. Pedersen	30
Herr J. Kaarsberg	101	Herr S. Christensen	20
Herr P. Pedersen	10	Herr H. Golderlund	25
Herr J. Lemche	10	Herr V. Wille	5
Herr Leon Meyer	500	Herr J. Jessen	10
Herr V. Hertel	100	Herr G. Schleisner	10
Herr N. G. Ernst	50	Herr Yusjong	10
Herr C. Vogel	10	Herr A. Meyer	50
Herr K. Lundh	15	Herr G. Pryde	25
Herr A. Kampegaard	15	Herr J. Lunddahl	15
Herr V. Scheel	20	N. W.	5
Herr V. Bie	20	Herr J. Ostenfeld	20
Herr V. Christophersen	20	Herr G. Schroll	20
Herr Rendtorff	50	Herr P. Vermehren	50
S.	20	Herr H. J. Panner	25
Herr Aa. Kiær	50	Fr. Karen Schlanbusch	15
Herr L. Melchior	20	Herr I. Schlanbusch	15
Herr Giellerup	10		
Total	Kr. 1985		£103 7s. 8d.

The following subscriptions to the Fund have been received by Dr. Des Vœux up to Tuesday evening last, in addition to subscriptions amounting to £4040 previously acknowledged, and not including money received by the Scottish or Irish Funds:—

	£	s.	d.		£	s.	d.
Dr. Greville Macdonald	10	10	0	Warrington Division			
Dr. Peter H. Abercrombie	5	5	0	B.M.A. (per Dr. J. A. Murray, Hon. Sec.)—			
Major Horace C. Colman, R.A.M.C. (T.)	1	1	0	Dr. Sutherland	0	10	6
Dr. W. L. Pethybridge	1	1	0	Mr. Wm. R. Brown	1	1	0
Dr. L. J. Hobson	1	1	0	Dr. Herbert B. Gibbins	1	1	0
Mr. A. P. Dodds-Parker	2	2	0	Dr. F. R. Miller	2	0	0
Mr. J. E. Burton	2	2	0	Dr. E. J. Hawkins	1	1	0
Mr. A. Bruce Roxburgh	3	3	0	Mr. J. B. Ferguson			
Dr. Harold Swale	3	3	0	Wilson	1	1	0
Mr. J. J. Giles	0	10	6	Mr. W. M. Mollison	5	5	0
Mr. Maurice F. Squire	1	1	0	Dr. T. Wilmoth	1	1	0
Henry Wells Oil Co.	1	1	0	Sir John F. H. Broad-			
Dr. B. Farquharson	2	2	0	bent, Bart.	5	5	0
Dr. Arthur G. Phear	5	5	0	Dr. H. Campbell Thom-			
Dr. W. Pasteur	5	5	0	son	2	2	0
Mr. E. M. Corner	3	3	0	Mr. T. P. Legg	3	3	0
Mrs. Scharlieb	5	5	0	West Somerset Division,			
Mr. Henry Juler	5	0	0	B.M.A. (per Mr. W. B. Winkworth)—			
Dr. Harrington Sains-				Mr. R. Henry F.			
bury	3	3	0	Routh	1	1	0
Mr. Arthur Cheate	5	5	0	Mr. Arthur W. Ormond	5	5	0
Danish Union of Doctors				Dr. Jas. Bannerman	1	1	0
(per Dr. Christophers-				Dr. G. F. Still	10	0	0
son, Hon. Sec.)	103	7	8	West Herts Division,			
Dr. J. E. MacIlwaine	2	2	0	B.M.A. (per Dr. K. J. Aveling, Hon. Sec.)—			
Mrs. Dawson Williams	1	0	0	Dr. A. N. Boycott	1	1	0
Dr. W. Hale White	5	5	0	Dr. S. G. Scott	3	0	0
Dr. Alfred Parkin	1	1	0	Brussels Medical Grad-			
Dr. John E. Eddison	5	5	0	uates Association (per			
Dr. D. A. Alexander	1	17	4	Dr. Major Greenwood,			
Dr. Alex. Macphail	1	1	0	Treas.), further dona-			
Dr. R. Percy Smith	5	0	0	tion	2	2	0
Dr. T. Wakefield	2	2	0	Sir W. S. Church, Bart.	5	5	0
Mr. R. Lake	10	10	0	Birmingham Local Com-			
Dr. Ettie Sayer	1	1	0	mittee (per Dr. Robert			
Sir William Whitla	5	0	0	Saundby)—			
Messrs Coleman and Co.	5	5	0	Dr. Harry C. Dixey	5	5	0
Dr. C. M. Chadwick	3	3	0	Dr. Sam H. Agar	3	3	0
Colonel H. H. Johnston,				Dr. Hamilton			
A.M.S.	1	0	0	Morton	3	3	0
Dr. John Stewart	2	2	0	Dr. Ernest J. Beards	2	2	0
Dr. Gould May	3	3	0	Dr. J. F. G. Pietersen	2	2	0
Mr. Victor Bonney	2	0	0	Mr. D. Priestley			
"R. L. G."	1	1	0	Smith	1	1	0
Dr. L. G. Nash	1	1	0	Dr. Harold E. White	1	1	0
Dr. J. C. Baker	1	1	0	Dr. Richard Drury	1	1	0
Dr. J. J. Pringle	5	5	0	Dr. H. W. Jacob	1	1	0
Messrs. Allen and				Dr. Cecil Roscrow	1	1	0
Hanburys	26	5	0	Dr. G. A. Wilks	1	1	0
Mr. Alfred Wright	0	5	0	Dr. A. B. Creak	1	1	0
Ross and Cromartie				Dr. W. H. Garbutt	1	1	0
Division, B.M.A. (per				Dr. F. N. Deakin	1	1	0
Dr. E. H. Mackenzie,				Dr. Cyril P. Burd	1	1	0
Hon. Sec.)—Dr. Smith,				Dr. H. Hubert			
Dr. Cameron, Dr.				Tipping	1	1	0
Mackenzie, Dr.				Dr. J. Ward	1	1	0
Dunsan, Dr. John-				Dr. H. Troughton			
stone, Dr. Ross, Dr. M.,				Bond	1	0	0
Dr. Somerville, Dr.							
Macrae	4	9	0				

	£ s. d.		£ s. d.
Dr. and Mrs. W. Cassels (proceeds of Whist Party) ...	9 15 0	Messrs. Clay and Abraham ...	5 0 0
Dr. Wiltred Glegg ...	1 1 0	Mr. C. Symes ...	1 1 0
Mr. H. Anglin White-lock ...	3 3 0	Mr. D. G. Pout ...	0 10 6
Dr. Rufus E. Evans ...	2 2 0	Birmingham Pharmaceutical Association (per Mr. F. Smith, Hon. Sec.), second donation—	
Dr. Thomas Procter ...	1 0 0	Messrs. Southall Bros. and Barclay ...	25 0 0
Dr. Lloyd Francis ...	0 10 6	Mr. J. A. Radford ...	5 0 0
Dr. Albert Carless ...	5 0 0	Mr. F. Barlow ...	2 2 0
Mr. Hugo Wolff ...	1 0 0	Mr. J. T. Bell ...	1 1 0
Messrs. Exell Bros. ...	0 10 6	Mr. T. H. Foden ...	1 1 0
Messrs. A. G. Hancock, Limited ...	1 1 0	Mr. F. J. Keene ...	1 1 0
Mr. J. F. Dickenson ...	1 1 0	Mr. A. B. Jensen ...	1 0 0
Mr. G. H. Dawson ...	1 1 0	Mr. B. B. Powell ...	0 12 6
Messrs. Whysall and Son ...	0 10 6	Mr. J. H. Haines ...	0 10 6
Miss A. I. Tufnell ...	0 10 0	Mr. G. L. Scott ...	0 10 6
Mr. J. W. Cussons ...	0 10 6	Mr. F. R. Smallman ...	0 10 6
Mr. J. J. Webb ...	0 10 0	Mr. A. C. Stanford ...	0 10 6
South-East London Pharmacists' Association. Result of Whist Drive (per Mr. W. T. Tucker) ...	6 15 0	Miss Cuthbertson ...	0 10 0
Sheffield Pharmaceutical and Chemical Society (per Mr. H. Anteliffe) ...	5 5 0	Mr. W. Keeling ...	0 10 0
		Mr. E. Paul ...	0 10 0
		Mr. A. Akam ...	0 5 0
		Mr. C. E. Dallow ...	0 5 0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund and crossed Lloyds Bank, Limited. These will be acknowledged by post direct, and a list will appear in THE LANCET weekly.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges with thanks the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Mr. Brown, per the Weybridge Cottage Hospital; Dr. W. A. B. Young, Blackburn; Mr. F. Lett, Hastings; Dr. B. Lewis Paton, Rugeley, Staffs.; Mrs. K. E. Raston, Ashford, Barnstaple; Doctors resident in the Barnsley area of the B.M.A., per Dr. R. F. Castle, Darfield.

The War.

THE BRITISH RED CROSS SOCIETY.—The summary of the work for the week ending Jan. 23rd states that since the last report there have been despatched to Calais 4 lorries, to Boulogne 2 motor cycles, 1 lorry, and 1 soup kitchen, and 4 ambulances to various places in England.

The number of auxiliary home hospitals accepted by the War Office is now 705, containing beds for 19,576, including 417 beds accepted during the past week. In Netley Hospital there are now 180 British, 194 Indians, and 6 Belgians. Arrangements are being made to accommodate the Japanese Red Cross surgeons and nurses in two of the hospital huts. The Lord Iveagh "Irish Hospital" extension is progressing.

During the week the expeditions to Serbia and Montenegro were despatched under the supervision respectively of Mr. James Berry and Dr. F. G. Clemow. Sir Thomas Lipton's generosity in regard to these units has been very great.

The total number of cases of stores sent abroad last week was 467, of which 232 were despatched to Boulogne, 113 to Calais, and 50 to Dunkirk. 104 hospitals at home were supplied with 721 cases of stores. The ambulance ships were provided as usual with their weekly supply of garments and comforts for the wounded. 11,052 garments were received during the past week and 14,036 were issued. Of these, 10,331 were sent to hospitals in this country.

SECOND LONDON (CITY OF LONDON) GENERAL HOSPITAL.—More than four months ago we described briefly in this column the manner in which St. Mark's College, Chelsea, and its adjacent buildings were being converted into a complete military general hospital of 520 beds, under the skilful supervision of Lieutenant-Colonel E. M. Callender, the commandant. The work of adaptation was

begun on August 10th, and the buildings were open for the reception of patients on Sept. 7th, while the first patients were admitted five days later. The number of beds belonging to this hospital is now nearly 900, for in addition to the 520 at St. Mark's College there are sections at St. Thomas's Hospital (233 beds), Victoria Hospital for Children (40 beds), Great Northern Central Hospital (65 beds), and the Richmond Red Cross Hospital (40 beds). Up to the close of last week 4328 patients had been admitted, including 140 officers, and the number of deaths was less than 20. The vast majority of the cases treated have recovered and gone back to military service. A brief inspection of the whole institution in company with the commandant made it evident that the great organisation which came into being only a very few months ago has settled down into working order, and that all the wheels are moving with the utmost smoothness. The cheerfulness of all the inmates was very noticeable.

More than 500 operations have been performed in the theatre, but these have included few amputations. Very few cases of undoubted tetanus have reached this hospital from the front. Of the four patients two recovered and two died. All cases with septic wounds have injections of tetanus antitoxin as a precautionary measure, and the septic wounds, of which there have been a great many, have done extremely well as a whole. Among the remarkable cases which have been under treatment the following three may be briefly mentioned here: 1. A bullet entered the abdomen half an inch above the pubes in the mid line. The wound of exit was just at the side of and below the tip of the coccyx. There were no symptoms at all from first to last, and the only sign was that after 14 days the patient had a seminal emission consisting largely of blood. 2. A bullet entered the side of the head just below the level of the lower end of the mastoid process. It came out at a similar place on the opposite side. Although for a time there was great muscular stiffness and vertigo on walking, the patient made a complete recovery. 3. A rifle bullet entered the back of the leg just about the popliteal space. It passed downwards and forwards and went right through the knee-joint, passing through the intercondylar notch. It was found in the ligamentum mucosum and removed. The strange feature was that no important tendon, nerve, or vessel was injured, and there was no fracture of any bone.

Largely through the instrumentality of Mr. C. Arthur Pearson it has been decided by the War Office that all cases rendered totally blind in consequence of wounds shall in future be drafted to this hospital where arrangements have been made for them to be visited at the earliest moment by representatives of Mr. Pearson's organisation, so that education may be begun without delay and some of the mental misery lifted from them by personal contact with blind instructors. Afterwards, when they are invalided out of the service, these blind soldiers will be drafted to a convalescent home for the blind. Among the surgeons on the *à la suite* staff of the hospital four—Sir Arbuthnot Lane, Sir Frederic Eve, Mr. G. H. Makins, and Mr. E. H. Fenwick—have left to take up other duties in connexion with the war, whilst another surgeon has dropped out through ill-health. Thus only one of the surgical staff has not been called up so far for active duty at the hospital.

Sir Ronald Ross, K.C.B., F.R.S., has been appointed consulting physician in tropical diseases to the Indian troops in Europe.

Surgeon-General W. D. C. Williams, C.B., commanding the medical units of the Australian Imperial Force in Egypt, had the honour of being received by the King at Buckingham Palace on Monday last.

SOLDIERS AT ST. THOMAS'S HOSPITAL.—At the last court of governors, the treasurer, Mr. J. G. Wainwright, reported that since the opening of the military wards 941 soldiers from the front, including 100 officers, had been treated at St. Thomas's Hospital, the hospital bearing all expenses.

Dr. Edmond Lagelouze, docteur en médecine de la Faculté de Paris, of Béthisy-St.-Pierre, Oise, together with three other inhabitants of the same commune, has by special desire of the King been enrolled an Honorary Associate of the Order of the Hospital of St. John of Jerusalem in England in recognition of distinguished services and great humanity to a wounded British officer on Sept. 1st.

DUBLIN CASTLE RED CROSS HOSPITAL: SURGICAL DRESSERS.—The honorary secretary of the Students' Union of the Royal College of Surgeons in Ireland was informed last week by Mr. Seton Pringle, honorary secretary of the medical committee of the Dublin Red Cross Hospital, that the members of the Medical Units of all Officers Training Corps in Dublin have been recognised as official surgical dressers to that hospital. There was an official opening of the hospital on Wednesday afternoon last, when the medical units paraded in the Upper Castle Yard.

ADDITIONAL BOMBAY WAR HOSPITAL.—The committee of the Bombay Presidency Branch of the Imperial Indian War Relief Fund have offered to the military authorities, through His Excellency the Viceroy, to provide a 500 bed hospital for Indian troops engaged in the war. This offer has been accepted, and measures are now in progress for the organisation of this hospital, which under the title of "The Bombay Presidency Hospital" will be equipped, staffed, and maintained from the Bombay Presidency, including Sind, and will be located probably at some convenient base in Egypt or at any place that the military authorities may, with a view to the requirements of the British Indian Forces operating in the field, determine to be most desirable. The expenditure incurred on the hospital will be entirely defrayed from the Bombay Presidency Branch of the Imperial Indian Relief Fund, in collaboration with the Women's Branch, and its general administration will be under the control of a special subcommittee appointed by the Administrative Committee of the Fund. The Indian Council of the St. John Ambulance Association, Bombay Presidency Centre, will also coöperate in the undertaking.

RED CROSS GIFTS FROM INDIA.—A return of the units received at the St. John Ambulance War Gifts Depot, Bombay, up to Jan. 5th shows a total of material representing a cash value of no less than 2½ lakhs of rupees, or £15,000, collected in three months. H.H. the Maharaja Scindia of Gwalior, in addition to the many generous contributions which he has already made towards the comfort and relief of the troops who are now fighting, has recently prepared and despatched to Bombay 500 units for the Indian Branch of the St. John Ambulance Association. Each unit makes provision of clothing and comforts for 10 wounded men.

NAVAL WOUNDED FROM THE NORTH SEA.—Our Edinburgh correspondent writes: "Last night, Jan. 25th, a ship of war landed at South Queensferry a number of men wounded in the North Sea battle on Sunday. The cases numbered 26, and it is understood that none are of a grave nature. The men were conveyed in motor ambulances to the Royal Naval Hospital, South Queensferry. For the second time since the war began Edinburgh Castle has been used as a hospital for German wounded sailors. On Jan. 25th 25 wounded sailors from the *Bluecher* were received at the Castle Hospital. As soon as they arrived at the hospital every attention was shown to them by the medical officers in charge. Fourteen of the men were badly injured, and the officials of the Red Cross Society who have been engaged in dealing with wounded soldiers on their arrival in the city during the past few months say they are the most serious cases they have yet seen. A number of operations were performed without delay. One or two sailors are said to be in a precarious condition."

POSITION OF SAILORS AND SOLDIERS UNDER THE INSURANCE ACT.—To the Medical Benefit Subcommittee of the Insurance Committee for the burgh of Edinburgh there has been submitted a memorandum issued by the Scottish Insurance Commissioners as to medical treatment of insured persons called up for service with His Majesty's Forces. The memorandum states generally that insured persons who belong to the Naval or Army Reserve, or to the Territorial Forces, or have enlisted in the New Army, are regarded as serving as sailors or soldiers from the moment at which they are called up or enlisted and accepted for service until disembodiment or discharge. During this period they are not entitled to medical or sanatorium benefits under the National Insurance Acts, and accordingly no liability for their treatment rests on the panel practitioner by whom they have been accepted. The position of such persons is not affected by the fact that they may be permitted temporarily to continue to

reside at home, even though they may be concurrently engaged in civil employment. An insured person who has been sent home owing to illness or in consequence of having been wounded must also be regarded as a serving sailor or soldier until the date of his discharge. Upon discharge, or in a case of a member of the Reserve or Territorial Forces, upon the demobilisation or disembodiment of these forces the insured person will again become entitled to medical benefit under the National Insurance Acts (unless otherwise disentitled).

Medical News.

UNIVERSITY OF OXFORD.—On Jan. 26th Convocation granted a decree to accept the sum of £450 offered by friends of the late Dr. Francis Gotch, F.R.S., Waynflete professor of physiology, to perpetuate his memory and to encourage physiological studies within the University. It is proposed to establish a Gotch Memorial Fund, the income to be expended upon an annual Gotch Memorial Prize, consisting of a bronze medal and a sum of £5, which will be awarded after examination to a member of the University who has worked in the University physiological laboratories for not less than four terms. The remainder of the income will be applied to the establishment and maintenance of a Gotch Memorial Library in the University physiological laboratory.—The following medical degrees were conferred on Jan. 21st:—

B.M., B.Ch.—C. H. L. Harper, Wadham.

UNIVERSITY OF CAMBRIDGE.—The following medical degrees have been conferred:—

M.B., B.C.—C. C. Kerby, Trinity.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates were successful in the subjects indicated:—

Surgery.—N. W. Rawlings (Section I.), Manchester; and E. M. Townsend (Sections I. and II.), Middlesex Hospital.

Medicine.—J. A. W. Robinson (Section I.), King's College Hospital; and M. C. Stark (Section I.), London Hospital.

Forensic Medicine.—C. D. Banes, W. F. Matthews, and J. A. W. Robinson, King's College Hospital; and M. C. Stark, London Hospital.

Midwifery.—C. D. Banes, King's College Hospital; H. A. de Morgan, Middlesex Hospital; W. F. Matthews, King's College Hospital; D. C. Ogilvie, Middlesex Hospital; J. A. W. Robinson, King's College Hospital; and M. C. Stark, London Hospital.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The quarterly examinations of the above Board, held in Edinburgh, were concluded recently with the following results:—

FIRST EXAMINATION.

Chombil Vittil Appunni Menon and Kaikhasru Sorabji Bhiwandiwala, Physics.—Rebecca Goodman, Gordon Spivey Woodhead, William Bethune Stott, and John Lawson Gibson.

Biology.—Gwilym ap Vychan Jones and Joseph Raymond Welply.

Chemistry.—Frederic Leo Jones and Muriel Keyes.

SECOND EXAMINATION.

Shapoor Dinshaw Vania, Robert Gloag Battersby, Lawson Lamb Steele, Thomas Jackson, Thomas Robert Wilson, Alfreð Black, Don Adrian Jayasingha, and Arukatti Patabendige Frederick Abeyuriya.

Anatomy.—Oswald Johnston and Buenaventure Ramirez.

Physiology.—Harold Gengoult Smith and Janie Isabel McBirnie.

THIRD EXAMINATION.

Charles Harris, Henry Valentine Fitzgerald, Robert McGregor, William McAlpine, Andrew Mathewson, Edward Spence, and John Alexander Smith.

Pathology.—Frederick Charles Joseph Mitchell and Iwan Davies.

Materia Medica.—James Stewart Durward, Owen Glendower Evans, Frederick Joseph Jack, Harry Morley, Norman Stewart Bruce, John Joseph Mulvey, and Paul Vertennes.

FINAL EXAMINATION.

Maurice Michael Fitzgerald, William Hamilton Wray, Sarah Louisa Rook, Jacobus Johannes de Waal, Harold Oliver Martin, Cawton Frank Pereira, Andrew Finlay Readie, Horace Palmer Margetts, George Barker Charnock, Charles Clouston Irvine, Harold Damant Atherstone, Claude Trevor Darwent, John Kenneth Garner, and Gerald Douglas Newton.

Medicine.—Percy Chisholm, John Adami, William Leckie Coullie, and Alexander Gray McKee.

Midwifery.—Arthur Macafee Burge, Tanguturi Janakiramiah, George Edward Mendis, and Percy Chisholm.

Medical Jurisprudence.—Octavus Walter Bateman, Bak Hin Ong, Henry Valentine Fitzgerald, Victor Albert Goonetilleke, Oswald Brunless, Gulabrai Teekchand Makhijani, Thomas Cormack MacGowan, Charles Evelyn Meryon, Arthur Craig, and John Phillips Fairley.

QUEEN'S UNIVERSITY OF BELFAST.—At examinations for the degrees of M.B., B.Ch., and B.A.O. held recently, the following candidates were successful:—

William W. Blair, William K. Campbell, Frank L. Cleland, David M. Clements, Robert Condy, Francis J. Devlin, Edmund Doherty (second-class honours), George Gordon, Thomas B. McKee, Frederick McKibbin (second-class honours), Terence P. McQuaid, Edward W. Mann, Samuel A. D. Montgomery, James Park, Malachy G. Paul, John C. Robb, Frederick G. Smyth, John K. Stewart (second-class honours), Martha J. M. Stewart, Patrick W. White, and John C. Wilson (second-class honours).

UNIVERSITY OF LONDON: ADVANCED LECTURES IN PHYSIOLOGY.—A course of eight lectures on Metabolism in Infancy will be given in the Physiological Theatre, Guy's Hospital, Borough, S.E., by Dr. M. S. Pembrey, University reader in physiology, and Mr. J. H. Ryffel, at 4.30 P.M., on Thursdays, Feb. 4th, 11th, 18th, and 25th, and March 4th and 11th. Attendance at this course is recognised in connexion with the B.Sc. (honours) degree in physiology. The lectures, which will be illustrated by experiments, are addressed to advanced students of the University and others interested in the subject. Admission free, without ticket.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 19th, at St. John's Hospital for Diseases of the Skin, Dr. W. Knowsley Sibley being in the chair, when some good cases were shown. Dr. Pinkus (Warsaw) opened a discussion on Copper Dermatitis.

LEICESTER ROYAL INFIRMARY.—At the last quarterly meeting of the governors and supporters of this institution it was resolved to build and equip a complete pathological and clinical laboratory at an estimated cost of £3500.

WEST OF ENGLAND CENTENARIANS.—On Jan. 20th Mrs. A. Moore, of Plymouth, celebrated the 104th anniversary of her birthday. Mrs. Arthur Mozley, of Cheltenham, celebrated the 100th anniversary of her birthday on Jan. 22nd.

MEDICAL STAFF OF THE VICEROY OF INDIA.—Lieutenant-Colonel T. A. Granger, Assistant Director of Medical Services (Indian Services) has been appointed honorary surgeon on the staff of His Excellency the Viceroy of India from Sept. 15th last, on which date Surgeon-General G. F. A. Harris, Surgeon-General with the Government of Bengal, completed the tenure of his appointment.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill announce for publication a new book on "Malay Poisons and Charm Cures," by Mr. J. D. Gimlette, which throws light upon the witchcraft of the medicine man, and discusses the medicines, poisons and their antidotes, of the Federated Malay States. The same publishers also announce "A Text-book of Diseases of the Skin," by Dr. J. H. Sequeira, physician to the skin department at the London Hospital, with new plates from colour photographs, and "The Difficulties and Emergencies of Obstetric Practice," by Mr. Comyns Berkeley and Mr. Victor Bonney, obstetric surgeons to the Middlesex Hospital.

BAZETT v. THE LONDON INSURANCE COMMITTEE.—We are informed that two applications have been made in the King's Bench Division before the Master (Sir J. MacDonnell) with regard to this case, which is an action brought by Mr. H. Bazett for a mandamus to compel the London Insurance Committee to proceed to the "assignment" of those insured persons for whose treatment no arrangements had been made on March 31st, 1913, and for damages for their having failed to do so in the course of that year. The first application made by counsel for Mr. Bazett was for the defendants to supply particulars of "the insuperable difficulty of ascertaining with precision the numbers, names, and addresses" of those persons which they allege in their "defence," and an order to that effect was made by the Master. The second application by counsel for the defendants was for the plaintiff to furnish particulars of the numbers of those unallotted persons for whom he claims payment of capitation fees would have been made to him had the assignment taken place, and for details of those persons and of the fees claimed. The order was made for such further particulars to be furnished as the plaintiff might be able to give after "discovery" or production by the defendants of the necessary documents in their possession.

MEDICAL CALLS TO THE BAR.—The following medical men were called to the Bar on Jan. 26th:—Middle Temple: J. W. Miller, M.D., D.P.H. Gray's Inn: A. Foster, M.D., C.M.

ROYAL INSTITUTION.—After his Friday evening discourse on Jan. 22nd at the Royal Institution Sir James Dewar presented to the institution, on behalf of Dr. H. D. Rolleston, the bust of Sir Humphry Davy, executed by Samuel Joseph in 1822.

Dr. Helen MacMurphy has been chosen by the Hon. R. A. Pyne, M.D., Minister of Education for Ontario, to be inspector of auxiliary classes for the training of pupils who, from physical or mental causes, are unable to take proper advantage of the ordinary public school classes of the province.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

GULLAND, GEORGE LOVELL, M.D., C.M. Edin., has been appointed to the Chair of Medicine in the University of Edinburgh.
HUDSON, A. C., M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Ophthalmic Surgeon in Charge of Out-patients at St. Thomas's Hospital.
LEISHMAN, ALEXANDER, M.B., Ch.B. Glasg., has been appointed Medical Officer to the Teesdale Board of Guardians.
MACILRAITH, A. R. M., L.R.C.P. & S. Edin., L.F.P.S. Glasg., D.P.H., has been appointed Assistant Medical Officer of Health of the Borough of Warrington.
MEACHEN, GEORGE N., M.D. Lond., has been appointed Medical Officer to Sherburn Hospital, near Durham.
OLIVER, GEORGE H., D.O. Oxon., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Ophthalmic Department at the Royal Eye and Ear Hospital, Bradford.
RISELEY, STANLEY, M.D. Edin., has been appointed Honorary Consulting Ophthalmic Surgeon to the Sheffield Royal Hospital.
WHITE, Major F. NORMAN, I.M.S., Assistant Director-General, Indian Medical Service, has been appointed a Member of the Simla Municipal Committee.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNESLEY COUNTY BOROUGH.—Medical Officer of Health. Salary £500 per annum.
BATH, ROYAL UNITED HOSPITAL.—House Physician. Salary £120 per annum, with board, lodging, and washing.
BERMONDSEY MEDICAL MISSION.—Female Resident Junior Assistant. Salary, with board and lodging.
BETHNAL GREEN INFIRMARY, Cambridge-road, N.E.—Assistant Medical Superintendent and Assistant Medical Officer. Salary at rate of £280 and £250 per annum respectively, with apartments, board, and washing.
BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry.
BIRKENHEAD EDUCATION COMMITTEE.—School Dental Officer. Also Assistant School Medical Officer. Salary £300 per annum in each case.
BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon and Third House Surgeon. Salary £150 and £130 per annum respectively, with apartments, board, and attendance.
BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.
BRADFORD, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, board, and washing.
BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with apartments, board, attendance, laundry, &c.
BRIDGEWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
BROMSGROVE, WORCESTERSHIRE ASYLUM, Barnsley Hall.—Locum Tenens Medical Officer.
BROOKWOOD, SURREY COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £230 per annum, with board, lodging, and washing.
BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.

CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £100 per annum.

CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.

CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.

CARMARTHEN JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.

COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEBLE-MINDED.—Female Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.

COVENTRY, COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.

DERBY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.

DERBYSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

DORCHESTER, DORSET COUNTY COUNCIL.—Temporary Assistant Medical Officer of Health. Salary at rate of £250 per annum.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.

EASTERN DISPENSARY, Leman-street, E.—Physician. Gynaecologist, and One or more Medical Officers for Evening Work.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Senior House Surgeon for 12 months. Also House Physician and Assistant House Surgeon for six months. Salary at rate of £250 per annum for senior post and £150 for junior posts, with board, apartments, and washing.

GLOUCESTER COUNTY ASYLUM, Barnwood, near Gloucester.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, laundry, and attendance.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—House Physician for six months. Salary at rate of £70 per annum, with board, lodging, residence, and laundry.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—Anaesthetist. Salary 50 guineas per annum. Also Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

HOSPITAL FOR DISEASES OF THE SKIN, 52, Stamford-street, Blackfriars.—Assistant Physician or Assistant Surgeon.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Two House Surgeons, unmarried, for six months. Salary £30, with board, residence, &c.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female House Surgeon and Female Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Or Male Resident House Surgeon. Salary £60 per annum, with board and laundry.

LEEDS PUBLIC DISPENSARY.—Honorary Medical Officer and Honorary Officer in Charge of Surgical Cases at Southern Branch, Hunslet-lane.

LIVERPOOL, COUNTY ASYLUM, Rainhill.—Locum Tenens Assistant Medical Officer.

LONDON LOCK HOSPITAL, Dean-street, Soho, W.—House Surgeon for six months. Salary at rate of £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Visiting Surgeon. Salary £100 per annum.

MANCHESTER COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER EDUCATION COMMITTEE.—Two Assistant School Medical Officers. Salary £300 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer for the Crossley Sanatorium, Delamere Forest, Cheshire. Salary £100 per annum, with board, apartments, and laundry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER, VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Female Resident Medical Officer for six months. Salary at rate of £100 per annum, with rooms, board, and laundry.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Two Assistant House Surgeons for six months. Salary at rate of £40 per annum, with board and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £85 per annum, with board, residence, and laundry.

NEWCASTLE-UPON-TYNE POOR-LAW INSTITUTION.—Second Assistant Resident Medical Officer. Salary at rate of £200 per annum, with apartments, rations, and washing.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £103 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTHAMPTON COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £250 per annum, with board, &c.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry. Also Assistant House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

RICHMOND, SURREY, ROYAL HOSPITAL.—House Surgeon. Salary £150 per annum, with apartments, board, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Second Resident Medical Officer. Salary at rate of £100 per annum, with board and washing.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.

SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, attendance, and rations.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SHEFFIELD CHILDREN'S HOSPITAL.—House Surgeon. Salary £150 per annum, with board and residence.

SHEFFIELD CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—First Assistant Medical Officer, Second Assistant Medical Officer, and Third Assistant Medical Officer. Salary £250, £225, and £200 per annum respectively, with apartments, rations, laundry, and attendance.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOKE-ON-TRENT EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and washing.

STOKE-ON-TRENT, STANFIELD SANATORIUM.—Resident Assistant Medical Officer. Salary at rate of £350 per annum.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TERRAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £40, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anaesthetist. Salary £110 per annum, with board, residence, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST HAM UNION.—SICK HOME, 95, Forest-lane, Forest Gate, E.—Second Assistant Medical Officer. Salary £200 per annum, with residential allowances.—WORKHOUSE, Union-road, Leytonstone, N.E.: Female Assistant Medical Officer. Salary £140 per annum, with residential allowances.—INFIRMARY, Whipps Cross-road, Leytonstone, N.E.: Second Assistant Medical Officer. Salary £260 per annum, with residential allowances.

WHITECHAPEL DISPENSARY FOR THE PREVENTION OF CONSUMPTION.—Assistant Medical Officer. Salary £250 per annum.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £125 per annum, with board, rooms, and laundry.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Clogher, in County Tyrone; and at Hawes, in the county of Yorkshire.

Births, Marriages, and Deaths.

BIRTHS.

RUTHERFORD.—On Jan. 23rd, at Frith Manor, Mill Hill, N.W., the wife of Major N. C. Rutherford, R.A.M.C. (T.F.), of a daughter.

TWIGG.—On Jan. 24th, at Derwent House, Derby, the wife of G. W. Twigg, M.D., Temporary Lieutenant, R.A.M.C., of a daughter.

MARRIAGES.

MATHER—WARD.—On Jan. 20th, at St. Nicholas Parish Church, Liverpool, Edward Elton, Lieutenant, R.A.M.C., to Alice Muriel, daughter of Lewis Ward, of Liverpool.

DEATHS.

NEWTON.—On Jan. 19th, at The Yews, Lakenheath, Suffolk, after a very short illness, William Thomas Newton, M.R.C.S., L.S.A., aged 63 years, late Divisional Surgeon, G Division, Metropolitan Police.

SHAPLAND.—On Jan. 23rd, at Burnside, Exmouth, suddenly, John Dee Shapland, M.R.C.S., L.S.A., aged 75 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

POPULAR MEDICINE IN GERMANY.

MODERN Germany is greatly victimised by quacks, and anyone who has had to do with a *hoch-kulturirt* German or Austrian knows how much he or she is likely to be the dupe of dietetic and therapeutic faddists. The attitude adopted is one of quaint, solemn, and almost grotesque caution in matters of domestic medication. Such a work, for instance, as Father Kneipp's "My Water-Cure," which attained its jubilee in 1896, may be compared to John Wesley's "Primitive Physick," of which the twenty-first edition appeared in London in 1785, while the last and twenty-seventh edition was published in New York in 1814. Father Kneipp, who was Secret Chamberlain to the Pope and parish priest of Wörishofen, in Bavaria, made a grand discovery when, about 50 or more years after the English, he found out the virtues of cold water. Throughout his book he regards cold water with solemnity as though it were a scarce and valuable but rather dangerous drug. He fights the good fight in its cause, and demolishes the objections of those who object to it on the grounds of "extraction of warmth." His illustrative anecdotes are delightful—a picture of domestic Germany throughout the nineteenth century. We read, for instance, of the "gentleman of high position" who had "an excessive aversion for water," and whose neck was so sensitive that he scarcely knew how to take enough care of it. The picture of Father Kneipp himself seated in a cold bath in midwinter and sponging the lower half of his stomach is meant to excite respect for his courage as an innovator. The record of the "Masserl" or highest number of pints, sometimes amounting to 10, which could be taken by the winner in a water-drinking tournament, is given as proof of self-devotion to a new cause.

THE OWNERSHIP OF BULLETS.

To the Editor of THE LANCET.

SIR,—With reference to the amusing and interesting remarks of a Swiss correspondent in THE LANCET of Jan. 23rd referring to the ownership of bullets, I have some recollection of an action at law in one of the continental courts being reported in your columns, where a young man claimed the bullet as he wished to have it mounted in gold as a trinket. This idea of the souvenir seems to be mainly at the bottom of the question, and is one which also concerns the jeweller perhaps. I read not many weeks ago that a German or Austrian lady of high rank was having certain soldiers' bullets mounted in gold for them free of charge. The question as to ownership has its comic side, and you reported once in THE LANCET the case of a bullet being extracted from a marine after it had worked its way from the hip to the calf, after being 42 years in the man's body.

I am, Sir, yours faithfully,

Jan. 25th, 1915.

ALBUS.

TREATMENT OF THREADWORMS.

F. F., a medical man, asks if any practitioner can suggest treatment for a case of threadworms of long duration in an adult. The patient has had treatment in the country and also from London consultants without permanent benefit, and our correspondent is at a loss what further to do.

BOVRIL PICTURES.

Messrs. Bovril, Limited, have forwarded us copies of the three bonus pictures of their current picture scheme, the largest being framed and the other two unframed. The large picture is an artist's proof of a photogravure after a painting by Mr. Arthur Elsley, entitled "A Private Rehearsal," and depicts a little girl performing a pirouette *sur la pointe du pied* in a drawing-room to the delight of the assembled company of young and old. Another work by the same artist is entitled "Good Night," and represents a young mother about to put the last-born in its cot in the presence of its brother and sister. The third picture is by Mr. A. de Breanski, jun., is entitled "A Welsh Valley," and shows a mountainous background and a rushing stream with stepping-stones being crossed by a peasant. The atmosphere is well managed. The pictures have all been produced by Messrs. C. W. Faulkner and Co., of London, in their usual excellent style.

Messrs. John Bell and Croyden, Limited, of 50, Wigmore-street, London, W., have published a card which contains a monthly calendar and a brief summary of the most important changes in the new British Pharmacopœia. A copy will be sent to any of our readers on application.

Mr. Cuthbert Reid.—We fear we could not reprint the article, but some further reference to the subject might be made.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Prof. G. H. Bryan and Mr. R. Jones: Discontinuous Fluid Motion Past a Bent Plane, with Special Reference to Aeroplane Problems.—Mr. T. R. Merton: On the Spectra of Ordinary Lead and Lead of Radioactive Origin (communicated by Prof. A. Fowler).—Mr. A. O. Rankine: On the Viscosity of the Vapour of Iodine (communicated by Prof. A. W. Porter).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF PATHOLOGY (Hon. Secretaries—Gordon W. Goodhart, C. Price-Jones).

Laboratory Meeting in the Pathological Department, Guy's Hospital, S.E.: at 8.30 p.m.

Dr. R. A. Chisolm and Dr. G. Marshall: The Active Principle of the Pituitary in Health and Disease.

Dr. P. P. Laidlaw: Some Anaerobic Methods.

Dr. J. H. Ryffel: Hematoporphyrin in Faeces.

Dr. J. W. H. Byre.

Dr. G. W. Goodhart: (1) Four Tumours of the Suprarenal Medulla; Ganglioneuroma and Neurocytoma; (2) Two Cases of Infarction of the Heart; (3) Case for Diagnosis: A Tumour of the Liver and Spleen associated with Bacillus Tuberculosis.

WEDNESDAY.

SECTION OF OPHTHALMOLOGY (Hon. Secretaries—Leslie Paton, Elmore Brewerton): at 8.30 p.m.

Cases:

Mr. Bernard Cridland: Case of Glass-worker's Cataract in a "Puddler" (Iron-smelter).

Papers:

Dr. Batten and Mr. Stephen Mayou: Cerebral Degeneration associated with Macula Changes: with Pathological Examination of a Case.

Mr. Leslie Paton: The Montessori System and its Use for Children with Defective Sight.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—Philip Turner, J. D. Rolleston, Sidney Gilford).

Members are specially invited to attend the discussion of Mr. Leslie Paton's paper at the meeting of the Section of Ophthalmology. (See above.)

THURSDAY.

SECTION OF OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—C. Hubert Roberts, Cuthbert Lockyer): at 8 p.m.

Specimens:

Dr. Maxwell: Fibroid of Uterus showing Invasion by Tubercle.

Short Communications:

Dr. Maxwell: Inversion of Uterus—(1) Acute; (2) Chronic.

Dr. Russell Andrews: Carcinoma in an Ovarian Teratoma.

Paper:

Dr. Herbert Spencer: Ruptured Unilateral Solid Cancer of Ovary Removed, Subsequent Pregnancies and Good Health.

FRIDAY.

SECTION OF LARYNGOLOGY (Hon. Secretaries—Cecil I. Graham, W. D. Harmer): at 4 p.m.

Dr. Hill: Specimens of Laryngeal Carcinoma.

Dr. Kelson: Case of Laryngeal Obstruction.

Dr. Jobson Horne: Sections of Pachydermia Laryngis.

Mr. Stuart-Low: (1) Case of Epithelioma of Pharynx and Tongue; (2) Mediastinal Tumour.

Mr. E. D. Davis: (1) Three Cases of Pituitary Tumour; (2) Case of Nasopharyngeal Fibroma.

Sir William Milligan: (1) Note on After-treatment of Submucous Resection of Nasal Septum; (2) Case of Chronic Lymphangitis of Nose.

Mr. C. I. Graham: (1) Epithelioma of Pharynx and Tongue after Operation; (2) Case of Tuberculous Inferior Turbinal.

Dr. E. A. Peters: Cases.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Cecil Hughes, F. E. Shipway): at 8.30 p.m.

Paper:

Mr. H. Finnemore, B.Sc., F.I.C.: Anæsthetic Ether.

Discussion:

On Method of Induction of Anæsthesia; to be opened by the President, Dr. Harold Low.

RÖNTGEN SOCIETY, at the Middlesex Hospital, W.

TUESDAY.—8.15 p.m., General Meeting. Paper:—Dr. S. Russ: Measurements of the Radiation from the Coolidge and other X Ray Tubes in Clinical Use. Dr. C. H. C. Lyster will show a Coolidge Tube. A "Victor" Interrupterless Transformer will be exhibited.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 p.m., Clinical Meeting.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, Society's Rooms, West London Hospital, Hammersmith-road, W.

FRIDAY.—8.30 p.m., Pathological Evening.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 a.m., Surgical Out-patient (Mr. E. Gillespie). 2.30 p.m., Medical Out-patient (Dr. T. R. Whipham); Gynæcological (Dr. J. B. Banister). 3 p.m., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Rays and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. J. Howell Evans: Observations on the Surgery of the Present War.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whiphram); Skin (Dr. G. N. Meachen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynecological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3 P.M., Lecture:—Dr. Dan McKenzie: Endoscopy.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

MONDAY.—5 P.M., General Meeting.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture III.)

THURSDAY.—3 P.M., Mr. H. G. Plimmer: Modern Theories and Methods in Medicine—Lecture III.: Methods and Results. (Illustrated by experiments, micro-photographs, &c., and Cinematograph films.)

FRIDAY.—9 P.M., Prof. A. W. Crossley: Science and Industrial Problems.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. C. E. Lea: Subjective Symptoms of Heart Disease.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1914 are now ready. Bound in cloth, gilt lettered, price 16s., carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 27th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Rad. in Vaeuo.	Maxim. Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 21	29.218	S.W.	0.02	54	46	43	44	44	Overcast
" 22	29.258	N.W.	0.94	37	37	34	33	34	Snowing
" 23	29.390	N.E.	0.09	38	38	28	29	29	Foggy
" 24	29.690	E.	...	50	44	29	33	36	Cloudy
" 25	29.678	N.E.	...	49	42	36	38	38	Cloudy
" 26	29.630	N.E.	0.01	49	43	37	37	38	Overcast
" 27	29.556	E.	...	41	39	38	36	38	Overcast

The following magazines, journals, &c., have been received:—Malaria e Malattie dei Paesi Caldi, Bristol Medico-Chirurgical Journal, Quarterly Journal of Medicine, Psychoanalytic Review, Canadian Practitioner, Archives of Internal Medicine, American Journal of Roentgenology, Albany Medical Annals, Archives of Pediatrics, Indian Medical Record, La Pediatra, Hospital Assistant, Review of Neurology and Psychiatry, Pacific Medical Journal, Journal of Tropical Medicine and Hygiene, &c.

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- Y.**—Mr. J. H. Yolland, Bromley; Dr. M. Young, Chester.

ABSTRACT OF

An Address

ON

IMMUNITY AGAINST INFECTIOUS DISEASE,

WITH SPECIAL REFERENCE TO

ANTITYPHOID INOCULATION.

Delivered before the Statistical and Social Inquiry Society of Ireland on Jan. 22nd, 1915.

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NATURE, CAUSES, AND KINDS OF IMMUNITY.

IT is a well-known fact that second attacks of infectious diseases are, with few exceptions, rare. In withstanding the first attack the patient has acquired immunity against further onslaughts of the same disease germ. Examination of the blood of such a person, moreover, affords evidence of the presence in it of substances that exercise a deleterious influence on the germ—may, indeed, kill it. The presence of these substances in the blood of the convalescent patient is only a particular case of a general law which may be thus stated: *The entrance of foreign albuminous matter (protein) into the system evokes the production of specific antibodies.* We now call the foreign or intrusive protein "antigen." Ehrlich explains the action of the antigen by supposing that its molecules combine with the receptors or nutritive side-chains of the body cells. Should the antigen be poisonous or occupy too many of the side-chains the cell may be killed. But if it survives it reacts by producing fresh combining links or receptors, which, being discharged into the blood, constitute the antibody.

The side-chains or receptors with their supposed capacities for combining, &c., have never been seen and may possibly not exist. They have been imagined and enable us to visualise a certain concept of how immunity is brought about. That concept may not be right—may not correspond to facts in all particulars. But it certainly does so to a very large extent, and, what is very important, the theory has proved itself a genuinely heuristic one in the sense that inferences based upon it have been found justified by the test of actual experiment. Under the influence of this theory immunity has become a vast and highly specialised department of research, and has yielded practical results of the highest importance, with one of which we are this evening concerned.

With regard to antibodies there are two points deserving special notice. In the first place they are only produced when the antigen is introduced par-enterally—that is, otherwise than by way of the alimentary canal. The second point is that antibodies are specific—that is, will only combine or react with the antigen that produced them.* Recovery from one disease will not protect against another. We term the poisons produced by microbes "toxins." They behave as antigens. During a non-fatal attack of an infectious disease, such as typhoid, the bacilli, consisting as they do of foreign protein, are powerfully antigenic; they stimulate the cells of the individual attacked, with the result that a crop of antibodies is produced

specifically directed against the intrusive micro-organisms. Thus there are found: (1) opsonins, which lead to the ingestion and destruction of the germs by the white blood cells; (2) antitoxins, which combine with and neutralise its poisons; (3) agglutinins, which cause the bacilli to adhere together and doubtless assist in their destruction; and (4) bacteriolytic amboceptors, which focus upon the bacillus the powerful ferments contained in the blood and thus bring about its dissolution. The consequence is that the attack is foiled. The disease germ is suppressed and got rid of. The patient recovers, and for a time retains in his blood enough of the specific anti-substances to render any further attack from the same quarter impossible. Such a patient is said to be immunised or protected, but the duration of protection varies within wide limits.

Immunity may be *natural* or *acquired*. In natural immunity the man or animal is congenitally incapable of becoming infected owing to the absence from his body cells of receptors capable of combining with the germs or their toxins. Acquired immunity may be the result of (1) an accidental, involuntary attack of the disease contracted in the ordinary way, or (2) the deliberate introduction of the antigen, or the corresponding antibodies by the parenteral path; this is artificial immunity.

Artificial immunity may be (1) active, or (2) passive. Passive immunity is obtained by the introduction into the subject of antibodies ready made. The antibodies are contained in the serum of an actively immunised animal, and this "anti-serum," as it is called, is injected. This procedure has proved of remarkable service against diphtheria and tetanus. Active immunity, on the other hand, is brought about by the reactive forces of the individual himself, elicited by the entrance of the specific micro-organism. It may be induced by the introduction of the disease germ: (1) in its primitive unaltered condition; or (2) modified in various ways.

1. Artificial introduction of the germ in the living state and of full virulence is, of course, a dangerous procedure, as the attack so induced may prove fatal.

2. The following are the chief modes of modifying the virus of a disease so as to render it suitable for protective inoculation. (a) It may be passed through the system of a more or less insusceptible animal. This is what happens in the only kind of protective inoculation hitherto universally practised—that directed against small-pox. (b) The virulence of the micro-organism may be diminished by heat or antiseptics. This is called attenuating the virus. (c) The virus may be slowly dried outside the body. In this way Pasteur succeeded in attenuating the virulence of the unseen micro-organism of rabies and converting it into a harmless vaccine. (d) The disease germs may be killed by heat or antiseptics. Their dead bodies constitute the vaccine. This is the method most usually employed as against typhoid, and is consequently that which chiefly interests us practically. It has also been found to work well as against paratyphoid, cholera, plague, and dysentery. (e) The germ itself may be got rid of by filtration and only its products or toxins may be introduced. This plan only works when the toxins are excreted into the culture fluid, as happens in the case of diphtheria and tetanus. When the poisons remain locked up in the body of the micro-organism, as they do in the case of typhoid, this plan is not applicable. The bodies of

* The question as to the so-called "group reactions" is here passed over.
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the bacilli may, however, be allowed to dissolve (undergo autolysis) or they may be pulverised at the temperature of liquid air, or they may be forced by enormous pressure to yield up their toxins, which may then be used for inoculation.

INCIDENCE OF TYPHOID ON THE GENERAL POPULATION.

Before considering the need for a new method of combating a disease, it is proper to ask ourselves how the disease has been influenced by the ordinary sanitary measures prescribed by the State or adopted by up-to-date units of sanitary administration. When we come to do this in the case of typhoid we find that there has been of late years a remarkable reduction in the incidence of that disease.

In Great Britain 20 years ago the death-rate per million from this cause was over 300; in 1912 it had fallen to 44—the lowest recorded. In Ireland there was also a fall, though not so pronounced. In 1903 the deaths numbered 480, and in 1913 289, the average for the past 10 years being 371. The rate per million dropped from 109 in 1903 to 53 in 1912, the average for the 10 years being 84. In many of our great cities the same thing has occurred. Thus in Liverpool in 1894 there were 1350 cases with 248 deaths, whilst in 1913 there were only 153 cases with 33 deaths. In Glasgow the case-rate per 100,000 was 138·6 in 1891 and the death-rate 21·8. In 1913 the former had sunk to 23·2 and the latter to 0·36. In other cities the fall is not so great. In Manchester, for example, there were in 1899 381 cases with 73 deaths, and in 1913 292 cases with 47 deaths, the death-rate per 100,000 falling during the 15 years from 13 to 6. In our own City of Dublin the cases 20 years ago numbered 813 and the deaths 104. Last year the cases had fallen to 287 and the deaths to 33. This latter figure corresponds to a death-rate of 11 per 100,000, the average for the previous 10 years being 16.

These figures afford convincing proof of the fact that under ordinary civil conditions of life, general sanitary measures, such as pure water, good methods of sewage disposal, attention to the food-supply (supervision of shell-fish, of milk), and certain specialised measures such as the discovery and isolation or cure of carrier cases, have proved effective in diminishing the prevalence of typhoid.

INCIDENCE OF TYPHOID ON TROOPS IN THE FIELD.

Experience has shown that when men are huddled together in camps or trenches or in beleaguered towns under war conditions, typhoid tends inevitably to break out amongst them and speedily becomes a regular pestilence.

Table I. sets forth the figures for typhoid in some recent campaigns.

TABLE I.—*Losses caused by Typhoid in some Modern Wars.*

War.	Strength.	Typhoid cases.	Typhoid deaths.	Killed in action, died of wounds.	Died of disease.
Franco-German, 1870-71, German army.	—	73,393	6,965	28,269	15,240
Spanish-American, 1898, American army.	107,973	20,738	1,580	243	2,565
Boer War, 1899-02, British army.	380,605	57,684	8,022	7,702	13,250
Russo-Japanese, 1904-05, Russian army.	—	17,033	—	34,000	9,300

From this we see that during our war with the Boers we suffered greater losses from typhoid bacilli than from the bullets of the enemy. The reason for the terrible ravages of this disease during war time is the greater difficulty there is in disposing

of the germ-laden excretions of the human body under the conditions then prevailing. Typhoid in military encampments is not, as a rule, water-borne. The specific germs are introduced by mild, undiagnosed cases, and by germ carriers. The latrines and trenches thus become infected and the bacilli are widely spread through the agency of "the three F's—Food, Flies, and Fingers"—so that all are brought in contact with the germs of the disease, and all that are susceptible take it.

HISTORY OF PROTECTIVE INOCULATION—AND ITS RESULTS.

For such exceptional conditions as those just referred to exceptional measures are obviously called for. It is to the labours of our gifted fellow-countryman Sir Almroth Wright that we are indebted for the introduction of a method that has now proved itself to be an effective weapon against the spread of typhoid. In his praiseworthy endeavours Wright has been most ably seconded by Colonel Sir W. B. Leishman, R.A.M.C., whose untiring industry has placed the procedure on a sound basis of experiment and observation, and thus powerfully contributed to its now well-nigh universal adoption in the armies of all the leading countries.

Wright's first steps in this matter were taken so far back as 1896, and are recorded in a paper² which was concerned with a totally different subject. In this paper he speaks of two men and an animal (horse) as having received inoculations of dead typhoid bacilli. Early in the following year³ he describes the changes in the blood of 17 persons similarly inoculated. Meanwhile it is only fair to state the subject was being energetically worked at in Germany by Pfeiffer and Kolle, who published⁴ an account of their systematically conducted experiments a few months before Wright's first paper appeared. Wright's work was, however, quite independent of theirs, and the development of the method in this country under Wright and Leishman was quite original and not in any way due to German influence.

In 1898 Wright inoculated 4000 men of the Indian army.⁵ Shortly afterwards came the first application of the new method in civil life, at the Barming Asylum, where there was a serious outbreak of typhoid, and 100 of the attendants were inoculated, not one of whom contracted the disease.⁶

As early as 1900 the method, still in its infancy, was tried here in Dublin at the Richmond Asylum, which was at that time suffering from a severe visitation of typhoid. At the instance of the late Dr. Conolly Norman, Professor Wright was invited to make a trial of his method, and the work of carrying out the inoculations was intrusted to the assistant medical officer, the late Dr. Henry M. Cullinan.⁷

Among the uninoculated, 114 in number (all nurses), there were 17 cases with 4 deaths. Among the inoculated, 500 in number (all patients), there were 7 cases with one death. Of the 7 cases, 3 were already infected at the time of inoculation, and must be left out of account. The case incidence per cent. was therefore 14·9 among the uninoculated, as compared with 0·8 among the inoculated, and the death-rate 3·5 as compared with 0·2. Only one inoculation was given and the reactions were severe, necessitating the patients staying in bed for three or four days.

The Boer War of 1899-02 afforded the first opportunity of testing the new method on a really large scale. Its use was sanctioned by the War Office but was left optional with the individual. Some 400,000

doses were sent out by Wright and Leishman, but it is believed that only about 100,000 men received one or more. Some were inoculated on the way out, some on arrival, many did not receive more than one dose, and the statistical results are incomplete. I reproduce Wright's figures.

TABLE II.—*South African War, British Troops.**

—	Number.	Cases.	Rate per 1000.	Deaths.	Rate per 1000.
Inoculated ...	19,069	226	11·84	39	2·04
Not inoculated...	150,231	3,739	24·88	(?)	(?)

TABLE III.—*Results at Ladysmith and Modder River.*

—	Number.	Morbidity.	Mortality.
Ladysmith—			
Inoculated	1,705	35 = 2·05%	8 = 0·47%
Not inoculated	10,529	1489 = 14·14%	329 = 3·13%
Modder River—			
Inoculated	2,335	26 = 1·11%	(?)
Not inoculated	10,981	257 = 2·34%	(?)

* These tables are taken from Russell, *loc. cit.*, the original publication not being available.

It will be noted that Wright claims to have diminished the case incidence by more than one-half and the mortality in still greater proportion. I feel certain that the method did not on this occasion obtain a fair trial. The unpleasant fact remains that out of a total strength of about 381,000 there were during that campaign nearly 58,000 cases of typhoid with over 8000 deaths. Some observers reported favourably of the method, such as Tooth,⁸ Marsden,⁹ Boyd,¹⁰ Osborn,¹¹ and Cayley.¹² But others were not able to agree as to its value (Elliot and Washbourn,¹³ and Melville¹⁴), whilst yet others¹⁵ went so far as to assert that the number of cases and deaths was increased by the inoculation. The *ad interim* verdict at the time was "not proven." The War Office suspended the practice for the time being, and appointed a Commission to report upon it. This Commission, which was presided over by Dr. C. J. Martin, F.R.S., entrusted the experimental part of the work to Sir W. B. Leishman.

By direction of the Commission inoculations were again taken up amongst the personnel of a number of selected units serving abroad, chiefly in India. The procedure was carried through in the most thoroughgoing and systematic manner. Careful attention was paid to the incidence of typhoid upon the units under observation, the most modern methods of diagnosis being employed by medical officers specially trained for the purpose. I reproduce the main results as reported by Sir William Leishman to the International Medical Congress held in London in August, 1913.¹⁶ The observations were made on 24 selected test units. The period covered extended from December, 1904, to June, 1909.

TABLE IV.—*Results of Antityphoid Inoculation among Troops on Foreign Service (Leishman).*

—	Total strength.	Cases.	Rate per 1000.	Deaths.	Rate per 1000.	Case mortality.
Not inoculated ...	8,936	272	30·4	46	5·14	16·9%
Inoculated	10,378	56	5·4	5	0·47	8·9%

In another table Leishman sets forth the typhoid incidence and mortality in India for the past 23 years, but it will suffice to confine our attention to the last 11 years, beginning in 1902 and ending in 1912.

TABLE V.—*Typhoid Fever in India from 1902 to 1912 (Leishman).*

Year.	Admissions.	Deaths.	Admissions per 1000 of strength.	Case mortality per cent.
1902... ..	1012	260	16·7	25·69
1903... ..	1366	292	19·6	21·38
1904... ..	1384	265	19·7	19·15
1905... ..	1146	213	16·1	18·59
1906... ..	1095	224	15·6	20·46
1907... ..	910	192	13·1	21·10
1908... ..	998	191	14·6	19·14
1909... ..	616	112	8·0	18·18
1910... ..	296	45	4·1	15·20
1911... ..	170	22	2·3	12·9
*1912... ..	118	26	1·7	19·0

* Since writing the above a statement has appeared to the effect that in 1913 the deaths from typhoid in our Indian army were reduced to 3.

Now, the practice of inoculation was re-introduced in the year 1905, but it was not until 1909 that the number of men inoculated was large enough to influence the general statistics. "From that year," says Leishman, "there has been a steady and very remarkable decline, the figures for each successive year constituting a fresh low record, until in 1912 we find that there have been only 118 cases in the whole of the British Army in India—a gratifying contrast to the large figures recorded in the past." (In 1897 there were 2050 and in the following year 2375 cases.) Leishman then proceeds to disclaim the view that this great diminution is exclusively attributable to the inoculations. "Improvements," he says, "in general sanitation, improved methods of diagnosis, the detection and isolation of 'carriers,' have undoubtedly all played a part; but my strong personal conviction, shared, I am glad to know, by many of my brother officers, is that the reduction is in the main due to the extended employment of anti-typhoid vaccine."

History of the Method in America.

The remarkable results that have been achieved in the American army by the use of the method are mainly due to the energy and perseverance of Major F. F. Russell, M.D., Professor of Bacteriology in the United States Army Medical School, Washington, who has recorded his experiences in a valuable paper.¹ The fearful havoc wrought by typhoid among the American troops during the war with Spain called imperatively for active measures, and in 1908 Major Russell was directed by his chief, Surgeon-General O'Reilly, to proceed to Europe and familiarise himself with the technique of the preparation of the vaccine. Russell accordingly betook himself to London, where he worked under Leishman and his assistants, and brought home the necessary experience and the special strain of typhoid (Rawlings) used in the preparation of the British army vaccine. The following year Russell began by inoculating his own laboratory staff. The news spread, and practically all the medical officers in and about Washington volunteered and sent their wives, children, friends, and servants. Then the corps of hospital attendants came in, and by the end of 1909 there had been vaccinated

1887 persons. The following year 16,073 people were done. During 1911 the influx of volunteers still continued, and the authorities, fortified by the experience of 20,000 vaccinations without a mishap, felt justified in making it compulsory upon all that were to participate in the manoeuvres on the Mexican frontier. The order was issued in March, 1911. The results achieved fully justified the step taken. Major Russell refers to the three divisional camps near the border, each camp being in full occupation for four months. At the Galveston (Texas) Camp there were 4500 men, at San Diego (California) 3000, and at San Antonio 13,000. At Galveston, though there were 102 cases of typhoid amongst the civil population (with whom the soldiers mixed freely), *there were no cases amongst the troops*. From San Diego only two cases were reported, one of which was doubtful. Major Russell draws an interesting comparison between the experience at the San Antonio camp in 1911 and that at Jacksonville (Florida) in 1898. These two camps, each of approximately equal size, were maintained for the same length of time. They were situated in the same latitude, and each had artesian well water of excellent quality. Yet in 1898 there were over 2500 cases of typhoid at Jacksonville, with 248 deaths, on a strength of 10,759 men, while at San Antonio in 1911, on a strength of 12,801 men, there were only two cases with no fatality.

Nor was the possibility of infection lacking, for during the duration of the camp there were 47 cases of typhoid with 19 deaths reported among the civil population, with whom the military freely mixed. Every allowance being made for improved sanitary measures and the fact that the 1898 camp was in war time, whilst peace prevailed in 1911, the result must be looked upon as the signal evidence of the power of inoculation to save encamped troops from this disease.

The next step in the American campaign against typhoid was the extension of the vaccination order to all recruits. This was done on June 7th, 1911. Vaccination against small-pox is carried out at the same time.

"If the vaccinia be severe," says Major Russell, "the second dose of typhoid-prophylactic is postponed a few days, but in no other way has it been found necessary to deviate from this routine of simultaneous vaccination against the two diseases. The two vaccinations are completed by the time the man has been 20 days in the service. Revaccination against both diseases is carried out, according to the present regulations at the beginning of each four-year period of enlistment. This is not because the immunity has by that time disappeared, for its duration is not yet known. It, no doubt, diminishes gradually, as is the case with that from small-pox, yet in the service it is desirable to maintain the army in a maximum state of protection against infection at all times, and it does not seem advisable to omit vaccination until an outbreak of typhoid shows the disappearance of all immunity. Small-pox has been almost entirely suppressed; there were only five cases among the American troops in 1911, with no fatalities, and typhoid has ceased to be the scourge of former times."

I have thought it well to quote this passage from Major Russell's paper in view of its applicability to the situation created in our armies by the present war. I am clearly of opinion that only by making the inoculation compulsory shall we be able to get the best results from it, and I venture to express the hope that our military authorities, uninfluenced by the protests of "faddists," may before long see their way to follow in the footsteps of the Americans.

On Sept. 30th, 1911, compulsory prophylaxis was extended to all persons in the American army under 45. The results are set forth in the tables which I reproduce:—

TABLE VI.—Typhoid Fever (United States) among Enlisted American Troops. (Russell.)

Year.	Mean strength.	Cases.	Deaths.	Cases per 1000.	Deaths per 1000.
1901	26,515	250	17	9.43	0.64
1902	39,736	341	34	8.58	0.86
1903	42,264	246	12	5.82	0.28
1904	43,940	247	12	5.62	0.27
1905	42,834	153	13	3.57	0.30
1906	40,621	230	12	5.66	0.28
1907	35,132	124	7	3.53	0.19
1908	46,316	136	11	2.94	0.23
1909	57,124	173	16	3.03	0.28
1910	55,680	129	9	2.32	0.16
1911	55,240	44	6	0.80	0.11
1912	58,119	15	2	0.26	0.03

TABLE VII.—Showing the Number and Proportion of Typhoid Fever Cases contracted before Enlistment and among the Protected Officers and Enlisted Men (United States proper only). (Russell.)

Year.	Total Cases.	Total deaths.	Infected prior to enlistment.	Among the vaccinated.	
				Cases.	Deaths.
1909	173	16	(?)	1	—
1910	129	9	(?)	4	—
1911	44	6	(?)	7	—
1912	18	3	5	6	—

TABLE VIII.—Typhoid Fever, 1901 to 1912, for the Whole Army, Officers and Men, at Home and Abroad. (Russell.)

Year.	Mean strength.	Cases.		Deaths.		Occurring among the vaccinated.	
		Number.	Ratio per 1000.	Number.	Rate per 1000.	Cases.	Deaths.
1901	81,885	552	6.74	74	0.88	—	—
1902	80,778	565	6.74	69	0.85	—	—
1903	67,643	348	5.14	30	0.44	—	—
1904	67,311	293	4.35	23	0.33	—	—
1905	65,688	206	3.14	20	0.30	—	—
1906	65,159	373	5.72	18	0.27	—	—
1907	62,523	237	3.79	19	0.30	—	—
1908	74,692	239	3.20	24	0.31	—	—
1909	84,077	282	3.35	22	0.26	1	0
1910	81,434	198	2.43	14	0.17	7	0
1911	82,802	70	0.85	8	0.10	11	1
1912	88,478	27	0.31	4	0.044	8	0

From Table VI. it will be gathered that the case-rate per 1000, which was 3.03 in 1909 and 2.32 in 1910, fell in 1911, coincidentally with the widespread adoption of vaccination in that year, to 0.80, and in 1912, the first year it was compulsory, to 0.26. Remarkable as are these results, they are surpassed by those of 1913, for the first nine months of which figures were available. The following table shows the monthly case incidence for the past six years.

During the period in question there was no change of importance in the general sanitary administration, and nothing to account for the disappearance

TABLE IX.—*Monthly Incidence of Typhoid amongst United States Officers and Men.* (Russell.)

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for 9 months.
Voluntary—													
1908	5	6	4	2	3	11	14	31	25	26	12	8	101
1909	4	10	6	4	11	15	26	14	16	45	20	6	106
1910	8	11	1	4	2	6	12	27	21	16	20	11	92
1911	3	3	3	7	4	4	4	7	4	4	1	0	39
Compulsory—													
1912	1	2	2	0	0	3	1	3	1	4	0	1	13
*1913	0	0	0	0	0	0	0	0	0	—	—	—	0

* Only one case occurred during the last quarter of 1913.

of typhoid save the introduction of prophylaxis by inoculation. This result must surely claim attention as a remarkable example of the annihilation of disease by the weapons which bacteriological research has placed in our hands.

Professor McWeeney then gave brief summaries of the successful results accomplished by means of antityphoid inoculation in other countries, and concluded his address with an account of the reaction caused by inoculation and a statement of the various classes of the population which should be inoculated.

[During the discussion on the above paper figures taken from the Report of the Army Sanitary Committee on the Prevalence of Typhoid in the British Expeditionary Force during the present war were given by one of the speakers to the following effect. The total cases numbered 212, of whom 22 died. Of the 212 cases, 173, or 81·5 per cent., and all the deaths occurred amongst the uninoculated. Of the 39 inoculated cases, 28 occurred amongst those who had received only one dose or who had been inoculated more than two years ago, whilst only 11 occurred amongst those regarded as fully protected. These results, convincing as they are, would be still more so did we but know the actual numbers of the two classes, inoculated and uninoculated. It would then be seen that the vast majority of the cases (81·5 per cent.) occurred amongst the comparatively few uninoculated men.]

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ROYAL INSTITUTION.—At a general meeting held on Feb. 1st, the Duke of Northumberland, K.G., President, in the chair, the special thanks of the members were returned to Dr. H. D. Rolleston for his generous gift, in the name of Miss Davy (niece of Sir Humphry Davy), of a bust of Sir Humphry Davy. The bust, as reported in our last issue, was presented to the institution on behalf of Dr. Rolleston by Sir James Dewar on Jan. 22nd.

EMBALMENT OF SEPTIC WOUNDS

IN CASES OF GRAVE DISORGANISATION OF LIMBS CAUSED BY RIFLE OR SHRAPNEL BULLETS OR SHELL FRAGMENTS.

By DR. LOUIS MENCIAÈRE,

OF RHEIMS; MÉDECIN-CHEF TO THE HOSPITAL OF THE COMPASSION AT COMPIÈGNE; CONSULTING SURGEON FOR THE CENTRE.

(Translated for THE LANCET.)

FIVE months of war spent as an operating surgeon in our hospitals at the front and at the base and 20 years of surgery, for the most part that of the bones and joints, embolden me to offer my opinion as to the best way of setting about the treatment of extensive damage to the limbs. I therefore bring forward this note on a proceeding and a formula which imply a radical change in the course of gunshot wounds, of which it is desirable that our comrades of the British army should be able to avail themselves.

If it were possible on the battlefield (which it is not) the preservation of a limb would depend entirely upon the primary cleansing of the wound and on the first dressing. I shall not easily forget how a good friend of mine, a *directeur d'école* at Rheims, while out shooting received the contents of both barrels of a fowling-piece in his foot at point-blank range. The bones were smashed, the torn foot was attached to the leg only by a strip of skin, &c., on its inner side, but the chief nerves and vessels escaped. The wound was swabbed out immediately with some alcohol, such as is used for spirit lamps, and which I found in a farmhouse. That evening the patient was taken to my hospital. A careful wound toilet was performed, all fragments of boot, gun-wads, &c., being removed, and the tendons and some of the soft parts were sutured. The foot was preserved in good shape and with good movement. This result was entirely owing to the immediate treatment of a part which was literally smashed, and to the subsequent complete and thorough attention which could be given in specially favourable conditions.

Are such conditions possible on the battlefield? No, absolutely No! Want of space, of skilled help, of facilities of all sorts, and the necessity of rapid evacuation are such that our wounded arrive at the ambulance or the field hospital in conditions very different from those of the case which I have mentioned. Let us consider the state of things existing at the front, for there is one surgery of the front and another of the base; and when the time comes for discussion of these matters I would advise those who have been operating near the fighting line to discuss things among themselves, and those who have been operating in the rear only to speak of what they have seen. Everyone would be the gainer.

We are considering then the surgery of the front. First of all, there is the question of seasons. Wounds in winter are not quite the same as those in summer, for the germ of sepsis is capricious and needs favourable climatic conditions for its development. When the ground is cold its virulence is diminished. Thus, in the hospital in which I operate gas gangrene, which was truly appalling in its frequency and the rapidity of its course in the beginning of the campaign, has almost disappeared in this winter season. But when gas gangrene appears I say without hesitation, however slight it seems, if only you feel that your antiseptics,

including hydrogen peroxide, are becoming ineffective, amputate—amputate without hesitation; it is the sole remedy that will save the patient's life. Select the site of amputation, do not mutilate too much, for even in tissues already indurated (*marbré*), after readjustment of the stump if needed, you will succeed. Embalm the stump, as will be described later, not with the view of preventing gangrene, but to prevent ordinary septicæmia, which lies in wait for the stump and would lead to its dissolution. In other cases, in which it is not a question of gas gangrene but of an ill-defined, sub-acute septicæmia, if after embalming the general condition remains bad, if the complexion is earthy, the pulse small and rapid, the respiration—above all, the respiration—rapid and difficult, the temperature raised; if, in one word, the patient is threatened with death from septicæmia, amputate again.

Note that I give this advice, although by profession I am in the habit of preaching conservatism *à outrance* in the ordinary circumstances of surgery, even when severely crushed limbs are in question. With these reservations it does not follow that conservative surgery must be—as it is with our adversaries—considered a Utopia. Nor does it follow, as we seem to have thought at first, that it is an easy thing and simple and regular in practice.

For 20 years I have seen wounds of the limbs of all kinds and from all causes, but never have I seen wounds take the course that they do in the run-down patients living under the present conditions. I consider that a few aseptic or antiseptic washings and dressings will not suffice, although they may be enough in other circumstances to preserve the limb. At the outset one thing is gained: the knowledge that it is absolutely necessary that asepsis shall give place to antiseptics—to antiseptics *à outrance*. Let us do homage to the immortal Lister and to our great Championnière! I yet remember what the latter told me at the Congress in London in 1913: "In 1870 I took a great deal of trouble to get a barrel of carbolic acid placed in an ambulance wagon. I saw the barrel again after the campaign. Its contents were intact!" Fortunately, it is no more thus, and we know that surgeons used to abdominal operations are now abandoning the prejudices born of the necessities of their usual work—for the peritoneum is not tolerant of antiseptics—to return to antiseptics when it is a question of the surgery of the limbs. Bone, joint, and muscle, and even tendon surgery is not possible without antiseptics—how many tendon transfers, arthrotomies, or resections have been done in vain because the surgeon has been satisfied with cleanliness instead of antiseptics. I spent a month in a hospital in the rear, where, for reasons not necessary to state, antiseptics was nearly impossible—a hospital in course of formation, operators not very enthusiastic, difficulties of supply, asepsis almost exclusively employed in operations and dressings, at most a few washings with permanganate. The results were deplorable, heartrending, upsetting all my recollections and all that I knew and had seen of the surgery of the limbs.

When I was called to the head of a surgical centre in a unit where I could dispose of powerful antiseptics I found once more the conservative surgery to which I was accustomed. Except for the cases of gas gangrene and acute septicæmia I was able as in time of peace to preserve a smashed

limb, an elbow, a humerus broken up in the midst of an intricate and septic wound, or a fracture of the thigh complicated by comminution and septic wounds. In a word, without trying to be conservative always, I am able to preserve the limb often or almost always. That, as it seems to me, is in the circumstances something appreciable, which everyone can obtain if he likes, if he will believe it.

Antisepsis, then, dominates all this war surgery. I do not believe that it can be applied on the battlefield. Later, when the subject is discussed I shall demand many motor-cars, abundant means of transport, not to move the wounded far into the interior, where necessarily they would arrive in a miserable condition, but to take them 20 or 25 miles from the firing line, where in well-established units one could make as good a job of it as we do here.

The wounded man arrives, let us say, with a septic, intricate wound, with the bone splintered. The treatment must be economical of tissues, atypical operation, removal of loose splinters and of sharp edges likely to wound vessels; cleansing of the wound, above all multiple incisions well placed; drainage of the wound, successive lavage with the three antiseptics—sublimate 1 in 1000, carbolic acid 1 in 40, and peroxide of hydrogen 1 in 3. Why these three antiseptics? Because all germs, spores, and microbes, whether anaerobic or aerobic, are not equally sensitive to the three. For the wound holds all sorts of undesirables, and one must give it what it wants for each. Each of the three antiseptics is particularly adapted to a peculiar microbial variety. Successive lavage of the wound with the three antiseptics, such is the first antiseptic dressing, which acts not only antiseptically, but in a mechanical manner in drawing out pus and all sorts of débris.

There remains the permanent dressing; in our practice it holds a place apart, because I do not hesitate to state that it changes the aspect and the course of wounds, and that it is the best aid to conservative surgery that I have been able to find after trying everything. Iodoform, dear to the old-fashioned, associated with guaiacol, eucalyptus, and balsam of Peru, forms an application which changes the course of healing of the wounds, often of the most septic, and gives unlooked-for results. Hospital gangrene, atonic sanious wounds disappear to give place to a wound which is bright carmine-red, with fleshy, well-nourished granulations, a wound no longer septic, but accompanied by healing, which has sometimes seemed to me extremely rapid. Such was the case of a rifleman, who had a hideous, infected wound of the calf with all the muscles hanging as if detached by a rake. I showed this patient at an inspection in the state described, and I showed him again three weeks later with a calf of normal form and almost completely cicatrised. A Zouave, whose forearm was saved, when amputation had seemed at first the only possible course is an instance in point; another Zouave, who was brought in with a deep intricate shrapnel wound of the shoulder, the bone smashed and draining badly, occurs to my mind, his wound changing appearance fast and becoming covered with healthy red granulations, a patient whom I could evacuate quickly. These wounds, had they been in my other unit, where antiseptics was practised badly or not at all, would not have healed and after operation would have remained unhealed.

This is what is beyond my personal experience acquired at my clinique of orthopædic surgery at

Rheims, this is what five months of war have taught me and what it is my duty to impart to others. The following is the treatment recommended: Successive washings of the wound with the three antiseptics after atypical operations when, as often, necessary. Embalmment of the wound (permanent dressing) with gauze wicks soaked in the solution, the formula of which will be found below. For three or four days wash again with the three antiseptics, after which, remembering the susceptibility of the cells, only wash with hydrogen peroxide 1 in 3 or 1 in 4, and again embalm. Repeat the dressing daily. It is a mistake to advise that the dressings should not be removed. A wound which is closing up necessitates an intense phagocytosis, an irruption of white cells which clog the wound and which form a liquid which it is always best to evacuate in order to avoid resorption. It is for this reason, too, that you must not close the wounds, but drain them freely with glass drains if, more lucky than I, you can get them. Embalmment of wounds thus, following the formula given further on, is a powerful antiseptic deadly to microbes but sparing the cells, calling forth the phagocytes and constituting a stimulant to the wound. It is the means which has succeeded best with me after having tried nearly everything—formol, salicylic acid, tincture of iodine, and iodine vapour itself. I do not decry tincture of iodine employed for a first dressing, but this method cannot be repeated, for if it kills the microbes it also causes necrosis of cells and leaves a surface which is an excellent culture medium, but not a good defence. This is my formula (A):—

Iodoform	...	...	...	...	10 grammes.
Guaiacon	...	...	...	...	10 "
Eucalyptol	...	...	...	...	10 "
Balsam of Peru	...	...	...	...	30 "
Ether	...	...	...	...	100 "

—used to soak the wicks of gauze or to be injected into the sinuses with a Roux's syringe. If you lack hydrogen peroxide, or if you are simply prodigal, you will do well with solution B for washing the wound before embalmment, which differs from A only in the quantity of ether, which is 1000 instead of the 100 of solution A. In case of idiosyncrasy or intolerance after a few days' treatment (which is exceptional) omit the iodoform from the formula. This is the "secret formula" with which my fellow workers have good-naturedly twitted me, knowing well, however, that I impart it freely to everyone who will do me the honour to employ it. This is the embalmment formula, not of the Pharaohs, but simply that of your Rheims colleague.

DONATIONS AND BEQUESTS.—By the will of the late Mrs. Mary Ann Haines Timmins, of Moseley, near Birmingham, the testatrix left £1000 to the Birmingham University and a similar amount to the Birmingham District Nursing Society, £100 to her medical attendant, and £100 each to the Relief Fund of the Birmingham General Dispensary, the Children's Hospital, Birmingham, the Birmingham and Midland Ear and Throat Hospital, the General Hospital, Birmingham, the Queen's Hospital, Birmingham, and the Birmingham and Midland Eye Hospital.—By the will of the late Mr. William Prenton, of Liverpool, the Stanley Hospital, the Royal Infirmary, the Cancer and Skin Hospital, the Eye and Ear Hospital, the Northern Hospital, and the Southern Hospital of that city will receive £500 each.—St. Bartholomew's Hospital will benefit by £4500 and a quantity of Metropolitan Consolidated Stock under the will of the late Mr. Ernest Baker. From the Merchant Taylors' Company the same hospital has received £500, being the second half of a grant made in 1913.

THE PREVENTION OF FROST-BITES.

By SHERIDAN DELÉPINE, M.B., C.M. EDIN., M.Sc.,
PROFESSOR OF PUBLIC HEALTH AND BACTERIOLOGY, UNIVERSITY OF
MANCHESTER, ETC.

FROM the accounts in the papers, both medical and lay, it is clear that our soldiers have suffered much from the effects of wet and cold since the beginning of the winter in Belgium and Northern France. It has probably occurred to many people that if these men could have been provided with waterproof coverings for their feet and legs they would have been saved from much suffering and from various sources of incapacity. It seemed, however, hopeless to suggest that they should be supplied with fishing boots or stockings, the cost of which is quite prohibitive. For some time I have been engaged trying to ascertain whether there was in the market any waterproof material thin enough to be worn between stocking and boot and cheap enough to meet the financial requirements of the case. Fabrics rendered waterproof with indiarubber seemed too costly, and I came to the conclusion that oxidised linseed oil was the most promising waterproofing agent for the purpose in view. Oiled silk appeared to have the properties needed except elasticity, but experience showed me that a straight bag of silk, rendered waterproof with heated linseed oil mixed with a suitable proportion of a drier, was so thin and pliable that it could be easily drawn over a thick stocking, and protected against wear and tear by a second stocking drawn over it after it had been adapted to the shape of the foot and leg by simply twisting it. Owing to the thinness, softness, and pliability of the material the foot covered with it can be introduced into the boot without difficulty, and it is possible to walk for several hours with the feet protected in this way without the oil-silk bag being felt at all. At first I experienced some delays in obtaining a completely waterproof oil-silk bag of suitable shape owing to the difficulty of making strong and waterproof seams. I had just obtained satisfactory results at a very small cost (less than 2s. for two leg bags) when I read in this day's issue of the *Times* (Jan. 26th, p. 7) an article on "Wader Stockings," which revealed to me the fact that Mr. F. B. Behr had had the same idea, and that a serviceable article, in all probability, more elegant and better made than my bag, was already available and had actually been adopted by the army.

As the object which I had in view had thus been fulfilled there would have been no purpose in my writing about this matter had I not carried out some experiments which indicated to what an extent thin waterproof bags can protect the feet and legs against the effects of immersion in ice-cold water. These experiments were conducted as follows. The bulbs of two bomb recording thermometers were fixed to the skin of the foot and ankle immediately behind and below the external malleolus. The bulb was firmly placed against the skin and covered externally with a layer of indiarubber plaster to prevent the free access of air or water. About one-third of the surface of each bulb was in close contact with the skin. To maintain contact the ankle was bandaged. One foot was then covered with two thin woollen socks; the other foot, after being covered in the same way, was inserted into one of my oil-silk bags. To permit free and equal access of

A surgical consultation was again held and an operation recommended, but this seemed likely to be severe. Since the growth had extended into the external coat of the rectum, it meant not only removal of the growth in the vulva and vagina but also of all that lay between the lower part of the vagina and rectum. It meant, too,

that there would be a deep cavity, one less likely to heal than its predecessor, and with the sphincter ani destroyed, an undesirable condition of things for the patient. It was decided, therefore, to try radium. Dr. E. Napier Burnett, who had had experience of the use of radium, saw the patient with me, and although the growth was involving both passages, and presented therefore not an encouraging condition of things, we thought there was just the chance that radium might do good. Accordingly, we obtained from the Radium Institute, London, a tube of radium emanations. Covering it with gauze, the tube was gently inserted into the vagina and left there for 24 hours. On removing the tube the mucous membrane of the vagina was seen to be reddened, and on the following day it was slightly inflamed. A mild muco-purulent discharge followed, but there was never any hæmorrhage beyond a few drops on the dressing on two or three occasions. Within eight days the inflammation had subsided. There was never any unpleasant odour attendant upon the discharge nor did sloughing occur. By the end of six weeks the growth had become distinctly smaller and more clearly defined. A breach in the mucous membrane which had occurred in the active stage of the inflammation, and from which pus had for a period exuded, gradually closed, the hard mass continued to shrink, and four months after the application of the radium it had entirely disappeared, leaving a healthy vaginal mucous membrane, tissues underneath soft and healthy to the feel, and apparently a normal septum between vagina and rectum. No trace of the growth now remains. The patient has put on several pounds in weight, looks many years younger, and the bladder and rectal functions are normal. She is leading an active and vigorous life and is looking the picture of health.

The application of radium in this apparently hopeless case of recurrent cancer of the vulva more than exceeded the expectations of Dr. Burnett and myself.

Newcastle-on-Tyne.

NOTE ON A SUCCESSFUL METHOD FOR THE EXTERMINATION OF VERMIN INFESTING TROOPS.

By S. MONCKTON COPEMAN, M.D. CANTAB.,

F.R.C.P. LOND., F.R.S.,

LIEUTENANT-COLONEL, R.A.M.C.(T.); DIVISIONAL SANITARY OFFICER, FIRST LONDON DIVISION (T.F.).

WITHIN about a couple of months of the troops of the 1st London Division coming into camp under canvas at Crowborough I learned through the medical officers in charge of some of the battalions that a certain number of the men under their charge were experiencing the unpleasant effects incidental to infestation by lice. Steps were at once taken to deal with the matter, but our efforts were at first somewhat handicapped owing to the fact that not only at that time had the men not been supplied with a second service suit, but that a number of those affected were found not to be in possession of a second shirt or change of underclothing. Moreover, it was not possible to obtain assistance from the rural sanitary authority of the area in the work of disinfection, owing to their not possessing any apparatus for the purpose of dealing with infected clothing and blankets.

As a matter of first instance all the battalion medical officers were called together for the purpose of informing them as to the various aspects of the question, including the life-history of the body-louse, *Pediculus vestimenti*, an excellent description of which, by Professor A. E. Shipley, was published in the *British Medical Journal* for Sept. 19th, 1914. At the same time commanding officers were communicated with as to the necessity for ensuring that all the men under their command should be provided with at least a second shirt, and if possible a complete change of underclothing. Further difficulty was experienced in providing baths for the men, there being no means at hand of obtaining hot water in large quantities. This was eventually obviated by the purchase of several large second-hand galvanised iron tanks, which were set up near the ablution place in each camp. These tanks were supported over a central trench on bricks laid in puddled clay. One end of the trench, which extended beyond the tank at either extremity, was fitted with a chimney built up of old bricks, drain-pipes, and puddled clay, while the other end was used as a stokehole. On lighting a fire in the trench it was found that even where no cover was provided for the tank the contained water, to the amount of 200 gallons or more, could usually be brought to the boiling point in about an hour. Bathing was carried out in an adjoining marquee, or in some instances in an empty house. Hot water from the tanks was carried in buckets and poured into galvanised iron wash-tubs in which the men could stand. Recently, however, the troops have been moved into huts, where ablution-rooms and bath-rooms supplied with hot and cold water are provided.

The further details of treatment are briefly indicated in the following copy of a memorandum which was distributed to all the medical officers of the Division:—

To the Medical Officer

TREATMENT FOR DESTRUCTION OF VERMIN.

Arrangements should be made for the bathing of affected individuals and other inmates of infected tents. After drying themselves, men to lather their bodies with cresol-soap solution,¹ especially over hairy parts, and to *allow the lather to dry on*.

Shirts to be washed in cresol-soap solution made with boiling water.

Tunics and trousers to be turned inside out and rubbed with same lather, especially along the seams. *Lather to be allowed to dry on the garment.*

The materials can be obtained from the A.S.C. on indent authorised by A.D.M.S. in the form attached.

(Form attached.)

To the Commanding Officer,
Army Service Corps,
1st London Division, T.F.

The following articles are required for the purpose of treatment for vermin. Please supply.

Jeyes' Fluid
Soft Soap

Signed

Medical Officer.

Address.....

Date.....

Infected blankets were at first treated by soaking them in cresol-soap solution, after which they were sent to a neighbouring laundry to be washed, a

¹ Water	...	...	...	10 gallons.
Jeyes' fluid	...	...	...	14 ounces.
Soft soap	...	...	...	1½ pounds.

small contract rate having previously been arranged. In the first week in November, however, a portable Thresh's steam disinfecting apparatus was supplied to the division, through the second army, since when no difficulty has been experienced in the disinfection both of clothing and blankets.

Appended to the article on lice by Professor Shipley, referred to above, was a series of suggestions drawn up jointly by Professor Nuttall and himself, in which the use of paraffin or petrol was advocated for the extermination of lice. Doubtless these substances would be perfectly efficacious for the desired purpose, but their use was not attempted owing to the possible danger, not unlikely to be incidental to the use of substances of so inflammable a nature by large numbers of men. As a matter of fact, the simple and inexpensive method which has been employed by us over a period of several months has proved so successful that no necessity has arisen for a trial of other means of treatment. It may perhaps be mentioned that a number of copies of our memorandum have been distributed in reply to requests from medical officers of health and medical officers in charge of troops. And in view of the fact that trouble due to the prevalence of lice has been experienced in other camps in various parts of the kingdom, the medical officer to the Local Government Board, and other members of the Army Sanitary Committee, suggested that a useful purpose might be served by the publication of a method which has been found so efficacious under service conditions.

A SIMPLE METHOD OF ADMINISTERING DRUGS UNDER WAR AND OTHER STRENUOUS CONDITIONS.

By F. W. TUNNICLIFFE, M.D. LOND.,
OUT-PATIENT PHYSICIAN, KING'S COLLEGE HOSPITAL; LECTURER
IN THERAPEUTICS AND PRACTICAL MEDICINE IN KING'S
COLLEGE HOSPITAL MEDICAL SCHOOL.

A FEW days ago I was asked to design a medicine kit to be used by an officer in the trenches for the treatment of ailments amongst his men. It appears that, generally speaking, the services of a medical man are not available, or at any rate may not be available, under the above conditions. The ailments occurring amongst the men during their occupation of the trenches, which I understand is now about four days, can perhaps, with one exception, be aptly included under the general term minor medicine. It was put to me that appropriate medicinal treatment might often prevent a man going on the sick list, or at any rate mitigate the discomfort suffered by him, if, as is invariably the case, he made up his mind to endure much rather than report himself sick. It is not my intention in this note to deal with trench maladies, although a communication upon this subject might be most interesting and helpful. The point, however, which is to be insisted upon is that it is most important to have at hand in the trenches a means of relieving urgent pain. The seriously wounded have often to remain a considerable time in the trenches before they can be removed to the rear, and with the hours of darkness getting shorter as the season advances this time will certainly be prolonged. During this period they suffer most distressing pain, which, both from the restlessness caused by it and its general effect upon them, is likely to make them less capable of

enduring the transit and treatment to which they must subsequently be submitted; it is also a source of extreme distress if not of actual demoralisation to their comrades. For such cases an active anodyne in massive doses is urgently indicated and the form in which it is available is not a matter of indifference.

The conditions obtaining in the trenches render hypodermic injections or rectal injections practically impossible. The absence of water makes solution of any solid preparation and subsequent volumetric measurement difficult, in fact, I am told also practically impossible. Tabloids require a manipulation on the part of the giver and a capacity for swallowing on the part of the patient which cannot always be relied upon as obtaining. The best method of which I know at present is the inclusion of the drug to be given in a gelatine or gum stick or in a thin gelatine sheet. In the first case a certain length of the stick is cut off with a penknife and put in the patient's mouth; in the second, an area of sheet is cut off with scissors and also placed in the patient's mouth; length of stick and area of sheet corresponding to a given dose. Muddy hands and indiscriminate knives render even such simple manipulations as these neither as easy nor as clean as they sound. Almost the same objection applies to perles, capsules, palatinoids, wafers, &c. Further, since some of our troops are fighting in snowstorms in Flanders, and others under a practically tropical sun in Egypt and elsewhere, the melting-point of the drug base must be considered.

The method which I have employed, and which, I think, is capable of wide application, is to prescribe the drug to be given in a semi-solid aromatic base and to enclose the mass in a collapsible tube such as is generally used to contain remedies for external application. The base must be sufficiently viscid to enable a continuous semi-solid jet of substance to be exuded from the nozzle by pressure at the bottom of the tube. By varying the composition of the base in glycerine, bismuth base, agar-agar, &c., all climatic conditions can be allowed for. There are many kinds of collapsible tubes on the market; those are specially to be recommended in which the screw cap is permanently attached to the neck of the tube; in these the cap cannot be lost. With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. The medicinal creams which I have had made so far all have the same dose—viz., 1 linear inch of the exuded jet. An inch can easily be measured against the last joint of the thumb, and indeed can practically always be accurately guessed. I made several experiments with different kinds of tubes and was at first greatly tempted to make use of those tubes, of which there are many on the market, with keys at the bottom; I thought that accurate dosage could be obtained by turning the key through definite arcs. This method is, however, quite fallacious owing to the inconstant calibre of the tubes throughout their length. As a constituent of the base I prescribe some aromatic substance which promotes salivation and thus reflexly stimulates swallowing. So far as I am aware any drug, crystalloid or otherwise, or any first dressing of wounds, except hydrogen peroxide, can be administered in this form and in adequate concentration. I have prepared, for instance, a chlorodyne cream containing up to 30 minims to the inch and a

morphine cream containing up to 2 grains to the inch. In preparing bases for creams containing crystalloids the viscosity of the cream should be tested after the crystalloid has been added and before the mass is put in the tube, as the addition of even small quantities of a crystalloid considerably alters the viscosity of the cream. For instance, a cream which will give in a collapsible tube a perfectly easily measurable semi-solid jet, will not do so after the addition of hydrochlorate of morphine to it, in the proportion of 1 grain of the salt to 20 grains—i.e., 1 linear inch of jet.

The application to the patient of these medical creams is so simple as to need no description. The inch of jet can be severed from the nozzle of the tube against his teeth, or if he is more or less unconscious it can be dabbed off on the back of his tongue. The cap can then be replaced on the tube. The bases which I have up to the present used have been kindly prepared by Messrs. Roberts, of Bond-street, who have shown much ingenuity and perseverance in the matter, and to whom my best thanks are due.

Harley-street, W.

THE TREATMENT OF PERSISTENT DIPHTHERIA INFECTION BY MEANS OF DIPHTHERIA ENDOTOXIN.

By R. TANNER HEWLETT, M.D. LOND., F.R.C.P. LOND.,
PROFESSOR OF BACTERIOLOGY IN THE UNIVERSITY OF LONDON.

IN a former paper¹ Dr. A. T. Nankivell and I detailed results obtained in the "treatment" of persistent diphtheria infections following an attack of diphtheria by means of one or more injections of diphtheria endotoxin prepared by the Macfadyen method. Subsequently I recorded another case successfully treated by the method.² Since then I have treated five more cases. One of these was a young medical man, a hospital resident, which was not successful, and I have lost sight of him. The four remaining cases cleared up after the use of endotoxin. Three of these were under the care of Mr. A. A. McAnally, of Eastry, Kent, to whom I am indebted for the notes. The following are the details:—

Ethel S. (11 years), admitted on July 26th, 1914; Edith S. (9 years), admitted on July 27th; and Charles S. (7 years), admitted on August 6th for mild attacks of diphtheria. Between August 10th and Sept. 2nd eight bacteriological examinations showed persistence of diphtheria bacilli. A dose of 0.5 c.c. of endotoxin was given to Ethel and to Edith on Sept. 3rd, but the result was inconclusive, six examinations between that date and Sept. 18th being sometimes positive, sometimes negative. This endotoxin had been in ampoules for several months and had precipitated somewhat and was probably inert. Some more of the same endotoxin which had been kept in bulk was therefore freshly tubed and sent for use. A dose of 0.5 c.c. of this was administered to all three children on Sept. 19th, and Charles showed no bacilli on Sept. 21st, 26th, and Oct. 3rd, and was discharged. A second dose of 1.0 c.c. of endotoxin was given to all three children on Sept. 26th and a third dose of 1.5 c.c. to Ethel and to Edith on Oct. 4th. The bacteriological examinations gave the following results:—

	Oct. 3rd.	6th.	8th.	12th.	15th.	19th.	21st.	24th.	28th.
Ethel S. ...	+	+	+	+	—	+	—	—	—
Edith S. ...	—	—	+	—	+	—	—	—	—

The last case was that of a young medical man, a hospital resident, who developed a mild attack of diphtheria on

Nov. 5th, 1914, was treated with antitoxin and recovered fairly rapidly, but in spite of local treatment and change of air bacteriological examinations showed persistence of diphtheria bacilli on Dec. 2nd and 23rd, and on Jan. 4th, 1915. On this day a dose of 0.5 c.c. of endotoxin was given, and bacteriological examinations on Jan. 7th, 11th, and 17th showed absence of bacilli. As a precautionary measure a second dose of 1.0 c.c. of endotoxin was given on Jan. 11th.

Up to date 24 cases of persistent diphtheria infection have been treated with endotoxin. Of these cases, in 17 the bacilli disappeared within a reasonable time after the use of the endotoxin; in one (Ethel S.) the bacilli did not disappear until 17 days after the last dose of endotoxin, and in 6 the treatment was unsuccessful. As regards the last named, it should be noted that some of them were those first treated, and the doses were smaller than I now employ. The treatment I now recommend is to give doses of 0.5 c.c., 1.0 c.c., and (if required) 1.5 c.c. at intervals of about seven days. In no case has any untoward effect been noticed. The endotoxin is injected into the muscle of the upper arm or back, and gives rise to some pain, tenderness, and swelling, lasting a day or two, at the site of injection, and occasionally to some malaise, rash, and rise of temperature. Thus in 75 per cent. of the cases the use of the endotoxin has been followed by disappearance of diphtheria bacilli, and I think the results are such as to warrant an extended trial of the endotoxin in the treatment of these troublesome cases of persistent diphtheria infection.

Chandos-street, W.C.

AN X RAY DIRECTOR FOR THE REMOVAL OF FOREIGN BODIES IN THE TISSUES.¹

By W. IRONSIDE BRUCE, M.D. ABERD., D.P.H.,
PHYSICIAN TO THE X RAY AND ELECTRICAL DEPARTMENTS OF CHARING CROSS HOSPITAL, ETC.

IT is possible by means of X ray to supply information as to the exact position of any foreign body imbedded in the tissues—a fact which was first demonstrated by Sir James Mackenzie Davidson, his method being generally admitted to be at the present time most reliable and accurate. Since then other methods have been devised which make for ease of application with accuracy sufficient to deal with foreign bodies of some size in the trunk and limbs. The real difficulty, however, rests in the application of such measurements by the surgeon at the time of operation, and for this reason I wish to draw attention to a piece of apparatus which, if it is at all practical to employ, I believe will lead to the successful removal of foreign bodies from any of the tissues, provided such are accessible from a surgical point of view. The principle involved was made use of some seven years ago, and I produced at that time an apparatus, which (though quite successful) was never developed because it was so complicated and difficult to apply; moreover, the question of foreign bodies at that time was not urgent.

The presence of foreign bodies in the tissues is now a matter of the greatest importance, and from what I have seen and heard about their removal there would be no objection to the employment of a more or less elaborate apparatus even if costly, provided that such were a decided advantage to the

¹ The Treatment of Diphtheria Infection by Means of Diphtheria Endotoxin, THE LANCET, July 20th, 1912, p. 143.

² THE LANCET, June 28th, 1913, p. 1802.

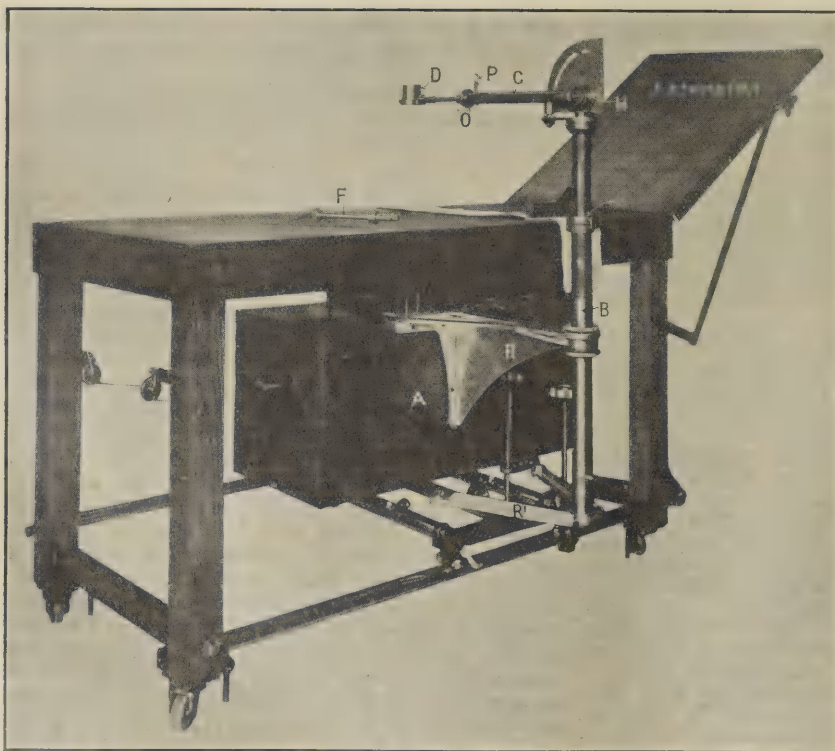
¹ A paper read before the Medical Society of London on Jan. 25th, 1915.

surgeon. Accordingly the original design has been altered, elaboration remains, but the actual application is simplicity itself.

On proceeding to deal with a foreign body in the tissues, which has been localised previously by one or other of the methods devised, the surgeon is confronted by the following difficulties. The marks on the skin are useless once the superficial incision is made; the knowledge of the depth at which the foreign body lies give him little help, since the tissues vary much in thickness; and, lastly, the foreign body, which is said to lie directly below a certain point indicated on the skin—a statement correct only so far as one plane is concerned—is missed, for it is often impossible for anatomical and other reasons to maintain the plane indicated during operation, some deviation being made and the direction lost.

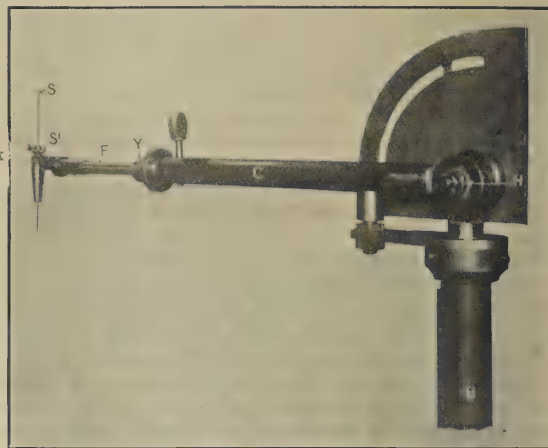
To deal with these difficulties the apparatus which I am about to describe has been constructed. The first principle involved is the necessity that the position of the limb or trunk at the time of operation should be the same as that at the time of observation. This can only be accomplished satisfactorily by a combination of X ray couch and operating table, as illustrated in Fig. 1, so that when under the anæsthetic the subject is placed in the position previously selected by the operator, and, having been firmly fixed in this position by means of sandbags and straps, the X ray observation is made and the operation immediately proceeded with.

FIG. 1.



Shows the construction of the couch and operating table, an extension in the form of a flap (attached to one end) allowing for the accommodation of the patient in dealing with the lower limbs. The couch is provided with a wooden top which can be kept clean and will not absorb fluids. The box containing the X ray tube is marked A, and springing from it, supported by the rigid brackets marked B B', is the upright marked B, to which is attached the cross arm marked C. All these parts are firmly fixed one to the other, and the box with its attachments, upright, and cross arm can be moved freely and easily along and across the whole length and breadth of the couch. The small circular fluorescent screen attached to the cross arm is seen in the position marked D. There is a sliding joint marked E provided (in the upright) for lowering and raising the screen so that it can be brought close to the surface of the body. On the couch is seen lying a strap for securing the subject and the sterilisable director and guide F.

FIG. 2.

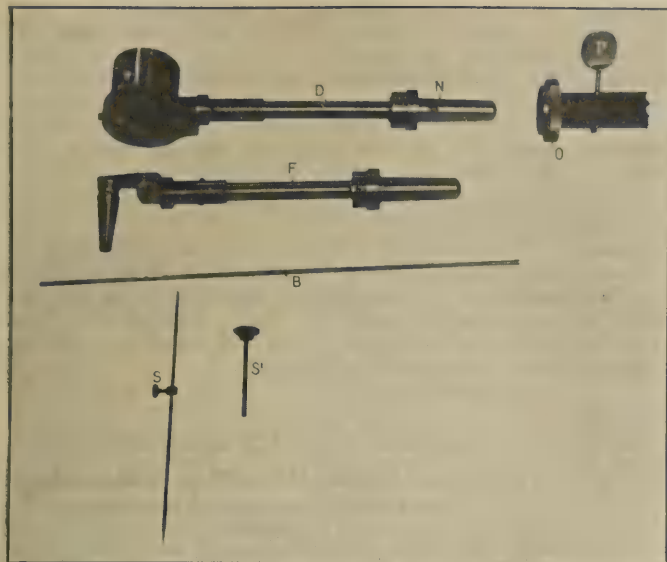


Illustrates the cross arm C attached to the upright B, showing the sterilised guide F and sharp director S attached. The cross arm C can be raised by movement permissible at the joint H, which is constructed so that the arm is returnable into exactly the same position without difficulty. From the point X to Y the arm is sterile when in use by the surgeon.

Only one observation should be necessary, but it might happen that accidental movement of the subject occurs, in which case there is no reason why further observations should not be made at any stage of the operation, since only a few minutes are necessary for such a proceeding. The use of

the fluorescent screen is essential, so arrangements have been made to enable this to be done in daylight, or bright artificial light, the X ray observer wearing dark glasses for some time beforehand to accustom the eyes to darkness, and an effective fluoroscope being attached. Secondly, the provision of a guide for the operator other than a mark on the skin. It is possible to arrange in connexion with the couch a vertical guide which corresponds exactly with the direction of the radiation. To accomplish this, below the couch in a box (Fig. 1A), which can be moved in any direction freely and easily, we have placed the X ray tube, and springing from this box is a strong and rigid upright (Fig. 1B), to which is attached a cross arm (Fig. 1C) projecting over the couch, all these parts being firmly fixed one to the other, and moving as one piece. At the extremity of the cross arm is attached a small circular fluorescent screen (Fig. 1D), there being provision for lowering or raising the cross arm so that this screen may be

FIG. 3.



Illustrates the fluorescent screen D showing the cross wires to indicate the screen centre, a point corresponding exactly to the centre of the guide which is shown marked F. The special joint N is constructed so that it is impossible that any change of position occurs, both the screen and guide fitting tightly the same socket and locked in position by the pin P. There is a brass collar, O, which is screwed to the arm and is provided for the purpose of easy removal of the screen and guide from the tight-fitting joint. The blunt graduated director is marked B, and the sharp one with its sheath is shown at S S'.

brought in more or less close relationship with the subject lying on the surface of the couch (sliding joint in position shown in Fig. 1E). Since the box and X ray tube are freely movable, and the upright and cross arm are firmly attached to it, the screen will maintain the same relationship to the X ray tube in whatever position it is placed. An X ray tube can be so arranged that only the actual central radiation is used, and under these circumstances the shadow of a foreign body as seen in the screen indicates the exact point in space below which that body lies. In other words, if the X ray tube maintains always the same relationship with the centre of the screen, the central radiation only being used, the shadow of the foreign body seen in the centre of the screen indicates that the body must lie in a line drawn between the tube and the screen centre. In this couch these conditions are easily complied with, for the central radiation is adjusted to correspond with the screen centre, and thus if the shadow of the foreign body is brought central in the screen it must lie below the screen centre in a line between the X ray tube and that point.

The tube box is capable of being firmly fixed in any determined position to the couch by simply pressing a lever, and consequently during observation when the shadow of the foreign body has been arranged in the centre of the screen, the whole—box, tube, upright, and cross arm—can be firmly fixed to the couch by making use of this lever. When this is accomplished the advantage gained is that we have in the screen centre a fixed point below which the foreign body lies. The screen is detachable from the cross arm (at the specially arranged joint seen in Fig. 3N), and in its place can be substituted a sterilisable metal guide carrying a director (seen in Fig. 3F), the point of which is arranged to correspond exactly with the centre of the screen, which has been removed. The guide permits of

movement of the director, only in the direction corresponding to the central radiation—that is, in the line between the screen centre and the X ray tube, which is, in fact, in the vertical plane. If the director running through the guide is advanced through the tissues its point must impinge against the foreign body, for owing to the whole construction being rigid any deflection from the proper plane is impossible. The advantage gained by this procedure is evident, for the surgeon is provided with a director which will unfailingly lead down to the foreign body, permitting him to deal as he pleases with the intervening tissues.

The guide and director are sterilisable, so can be safely handled during the operation. A joint is provided in the cross arm to allow of the director being lifted out of the way and returned in exactly the same position when wanted. (Fig. 4, cross arm lifted out of the way. Fig. 2, returned in identical position—joint at H.) The X ray observer from the moment the observation is made hands over the whole apparatus to the surgeon, and takes away all his part of the construction, so that no unsterilised part is brought near the area of operation.

Two forms of director are provided, one blunt and graduated (Fig. 3B) so that the depth discovered by previous localisation can be made use of, the other sharp in the form of a needle (Fig. 3S) to be introduced in suitable cases into the tissues until the point comes in contact with the foreign body. When using the sharp director a telephone can be attached to announce the contact of the point of director with foreign bodies. The blunt director is provided for use in cases in which it is not advisable to introduce the sharp instrument. For example, in

FIG. 4.



To illustrate the cross arm C raised out of the way at the joint H, the guide F and blunt director B being attached. The arm can be replaced as shown in Fig. 2 without any change in the position of the guide or director.

dealing with the abdomen by using this device it is possible to open the cavity, the guide and cross arm being lifted out of the way to facilitate this part of the operation, retract the parietes, bring the director again into place, and gradually advance its point to the depth previously ascertained, dealing with intervening structures as they present themselves.

It is obvious that before using such an apparatus as I have described an ordinary X ray examination should have been conducted to settle roughly the position of the foreign body and enable the surgeon to decide upon the line of operation, which having been done a surface localisation should be made in order that the depth of the foreign body may be gauged and its position roughly indicated on the skin, to assist in its subsequent observation with the small screen provided in the X ray director.

In conclusion, I wish to express my indebtedness to Dr. W. Lindsay Locke for many valuable suggestions and for the interest he has taken in our endeavour to get the apparatus as mechanically perfect as possible.

Chandos-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

LOSS OF MEMORY DUE TO EXPOSURE.

By H. J. COOPER, M.A., M.B. CANTAB.,
M.R.C.S. ENG., L.R.C.P. LOND.

THE following case seems worthy of record, as apart from the patient being one of the survivors of the ill-fated H.M.S. *Formidable*, it seems that a scientific interest must be attached to the mental condition following the exposure and apparently caused by it, as there was no evidence of injury having been sustained. Similar cases are known to occur after concussion of the brain, but so far as I know none have been recorded as due to exposure.

The patient, a boy aged 18, left the ship in one of the boats about 2 A.M. on Jan. 1st scantily clad, and was exposed to the full force of a very violent southerly gale till 11 P.M. the same day. The boat was constantly swept by the seas and all the occupants were the whole time drenched to the skin, the boat being frequently half full of water and only kept afloat by constant baling. When brought ashore the patient was quite unconscious as were several other occupants of the boat. His pulse was very small and intermittent, and the respirations were very feeble. He could not be made to swallow, so hypodermics of strychnine and brandy were administered; his breathing improved but became rather stertorous. At 4 A.M. on Jan. 2nd he was still very cold in spite of hot water bottles and friction, and the pulse was still very feeble. By 9 A.M. he had recovered consciousness to some extent, but seemed very dazed and passed everything under him in the bed, and this occurred for three or four days. His temperature at 2 A.M. on Jan. 2nd was 100.4° F., and in the evening it was 101°; subsequently it ran a normal course.

By Jan. 9th the patient was up and walking about, but could remember nothing about the incidents in the boat or how he got into it, and

had only a vague recollection of the explosion. At this time he seemed to have no sense of locality and lost his way about the small hospital. He also appeared lethargic, though his companions stated that he was usually of a very lively disposition. On the 12th he was much better and could remember some of the incidents in the boat, such as one of the crew going mad. There was nothing abnormal to be found with the exception of the hands and arms being unusually blue. The pupils were equal and the knee-jerks normal. There was no albumin in the urine.

Though there were six other men who were quite unconscious when landed, some of them, like this patient, not recovering consciousness till many hours after, none of them showed any loss of memory for events which had taken place prior to their becoming unconscious.

Lyme Regis, Dorset.

SPEEDY ENUCLEATION OF THE EYE.

By JOHN FURSE McMILLAN, M.R.C.S. ENG.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS (RET.).

IN these times when celerity is the order of the day it may not be amiss to record a case of enucleation that occurred in practice amongst natives in a clinic at Ferozepoor, the Punjab. The note may be of service having regard to circumstances of war.

The patient was a girl between the age of 5 and 6, suffering from the effects of contagious purulent ophthalmia of the left eye. The patient having been anaesthetised, I affixed the stop-spring speculum and with a hook drew forward and depressed the eyeball, when I was struck by the cramped position of the parts; and so, after having cut round with scissors the conjunctiva above the horizontal equator, I punctured the ball and allowed the vitreous to escape. Then with ease and speed the muscles of the eye were severed; the membranes of the ball were divided at the longitudinal equator, and next carefully trimmed to the eighth of an inch around the optic nerve. There was little or no hæmorrhage. A pad of boracic wool was inserted, and bandage applied. The next morning the wound had almost completely healed by first intention, and at the next visit it was found that the child was so far thought to be completely recovered as to be taken back by her father to her village.

Celerity here was the main point. As regards the danger of sympathetic ophthalmia the risk would appear a minimum, though one would view with caution any tampering with the optic nerve. Let us suppose that the wound does not unite by first intention, as is possible under the conditions of warfare, then it would appear obvious that there is less likelihood of inflammation of the stump than if the optic nerve had been severed. In puncture of the ball the time taken is three and a half minutes; in non-puncture five minutes or over.

ROYAL SANITARY INSTITUTE.—Dr. M. S. Pembrey, lecturer on physiology, Guy's Hospital, and late member of the Advisory Board, Army Medical Service, will open a discussion on Tall *versus* Short Men for the Army, at the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W., on Tuesday next, Feb. 9th, at 7.30 P.M. The chair will be taken by Surgeon-General Sir W. Launcelot Gubbins, K.C.B.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PSYCHIATRY.

The Application of Physiology to the Study of Mind in Health and Disease.

THIS section held its opening meeting of the session on Jan. 26th, Dr. F. W. MOTT, the President, being in the chair.

THE PRESIDENT took for the subject of his address the Application of Physiology to the Study of Mind in Health and Disease, and his theme was the importance of the ductless glands in the human economy, especially their influence upon growth and, later in life, upon reproductive activity and integrity. He quoted with approval Maudsley's contention as to the necessity of attempting the objective method in the study of mind, for, as Maudsley said, that which a just reflection taught incontestably the present state of physiological knowledge illustrated practically; and Maudsley contended 40 years ago that no psychology could endure which was not based upon physiological investigations, though physiology could not expect for many years to furnish the complete data of a positive mental science. Physiology, however, had now made great advances, and in no sphere was this more notable than in the biochemistry of the ductless glands and the influence of their internal secretions on the bodily functions, an addition due, in great measure, to English physiologists. It was very desirable to apply this knowledge to the study of psychiatry. In Maudsley's work on the "Physiology of the Mind" the hormone theory was anticipated, for he said that the overmastering feelings during pregnancy and those arising from puberty could not be explained in consciousness, and that there was reason to believe that each internal organ of the body had its representative control in the supreme cerebral centre. The functional development of the reproductive organs occurring at puberty effected a complete revolution in the mentality of the youth; and he now became susceptible to impressions which were previously a matter of indifference to him; he was now the subject of aimless longings and obscure impulses, and altruistic feelings began to germinate, and he appreciated what others had done for him in the matter of care and nurture. These feelings were not present in cases in which the reproductive organs were removed before puberty. The evolution of the sex glands was also important in regard to disease. Nature was not mindful of the individual, only of the species, and the sexual was the strongest of all the impulses. The desires had their source in the unconscious life. It was a common saying that love was blind, yet it also added a precious seeing power to the eye, which was necessary to materialise the biochemical stimulus and effect the continuation of the species. The language of love was universal; it could not be concealed when it existed, nor feigned where it did not exist. Yet in the present condition of civilisation this was the impulse subjected to the greatest amount of repression. Insanity was especially common at two periods of life: in adolescence and at the involutionary period. He asked whether it should be assumed that the mental disorder of the true insanities or psychoses, even those which terminated in dementia, could be explained by any structural changes in the brain; or should it not rather be believed that they were due to disturbance of the physiological equilibrium and of the internal secretions of the ductless glands, in many instances acting on a weak inheritance? The interstitial gland structure of the sexual organs functioned independently of the genetic gland structure; and functionally correlated with the sexual glands were the thyroid, the parathyroid, the hypophysis, the pineal gland, the cortical portion of the suprarenal gland, the thymus, and probably also the islands of the pancreas. For a proper study of this subject there should be a systematic examination of all these glands in health and disease, at all age periods, and in persons with and without mental disorder. He had obtained objective grounds for the association of aberrant mental conditions with disease of

ductless glands in three cases of myxoedema. In the thyroid gland there was marked increase of lymphoid and fibrous tissue, and a complete absence of colloid material in one, and a great reduction in the others. There was an increase of colloid material in the pars intermedia of the pituitary gland; and the central nervous system showed marked chromolytic changes in the nerve cells, affecting in a grave manner the autonomic bulbar system. There was an association of the myxoedematous syndrome with acute psychosis. During pregnancy the thyroid gland increased in size, and there was a marked colloid increase in the follicles; a similar increase took place during menstruation and at the climacterium. In pregnancy, too, there was an increase in the parathyroids. There was also a large increase in the lipoid cholesterolin content of the adrenal gland, and these cells were, structurally and chemically, closely allied to the cells of the Graafian follicles. The thyroid gland might be of ordinary size yet contain very little gland substance, hence it was necessary to examine microscopically. An interesting case was that of a married woman, aged 57, whose speech was said to have been slow, and who had indistinct tremors of face, hands, and tongue; her memory was impaired, and she had no idea of time or space; she had attempted suicide prior to admission. She became so demented that she was considered to be a case of general paralysis. Post-mortem examination, however, showed that she had not had general paralysis. The sella turcica was very large, the glenoid processes absorbed, the pituitary was twice the normal weight, and the thyroid gland very atrophied and fibrotic. There was an infantile uterus, and the left ovary was destroyed by old salpingitis; the right one was atrophied and damaged. Probably the patient had had gonorrhoea early in life. An increase in the size of the pituitary gland might have an important bearing on the production of mental symptoms; if the cerebro-spinal fluid served as the lymph of the brain, as he believed, excess of the colloid which irrigated the neural spaces might have an important influence on the functions of the organ of mind, but more work was required to remove this from the sphere of imagination. The ovaries of women suffering at an early age from insanity, and dying in early or late adolescence, had been found at the necropsy to be fibrotic. Dr. Laura Forster had made a series of examinations of ovaries in cases of dementia præcox. Those of subjects who had reached the age of 30 showed signs of early involution, and great scarcity of Graafian follicles; also in cases of *manie dépressive* there was a diminution in those follicles. But the value of these findings was greatly lessened by the fact that in a woman who died from heart disease without any mental trouble there was a like reduction. Still, Dr. Forster's work was highly suggestive. With regard to the pineal gland, it had been shown that tumours of the pineal gland occurring in very young people had been associated with precocious development of the sexual functions and the secondary sex characters. It had been thought that the pineal gland might exert some inhibitory function on the development of secondary sex characters. As to the suprarenals, it had been known since the time of Addison that this gland was essential to life. It had been found that the emotion of fear exercised such an effect as to liberate adrenalin in excess into the blood. Elliott had dealt in an illuminating manner with this subject in the Sydney Ringer lectures. The cortical cells of the suprarenal gland were of great importance in the development of the body during its early existence, especially in regard to the brain. And it was of great importance in relation to the development of spermatozoa, and was increased in the pregnant woman; probably the material was necessary for the growing embryo. Adenoma of the cortex of the suprarenal gland had been found associated with precocious sexual development in both males and females. There was also, in the animal series, a correlation between the size of the brain and the amount of adrenal cortex; the cells in its cortex were the source of supply of the lecithin and cholesterolin required for the enormous growth of the cerebral hemispheres in early life. In conclusion, Dr. Mott said that though the subject of biochemistry was still in its infancy, it promised most hopeful results.

Dr. J. G. SOUTAR (Gloucester), in proposing a vote of thanks to the President for his address, pointed out how much the clinical alienist was indebted to those who, like

the President, were working to establish principles on which progress could be made in the treatment of mind disease.

Sir GEORGE SAVAGE seconded, remarking that the President was such a successful pathologist because he did not think the science was to be learned simply from dead matter.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in the Pathological Laboratory of the Queen's University of Belfast on Jan. 21st, Dr. J. S. Morrow, the President, being in the chair.—Sir John Byers gave an account of a case of severe Pre-eclamptic Toxæmia successfully treated by the Stroganoff method. A very careful chemico-physiological analysis of the urine, made by Dr. John Gibson, was brought forward.—Professor W. St. C. Symmers read a short paper giving an account of the lesions produced in a Soldier's Skull by the Accidental Discharge at Short Range of a Modern Rifle.—Dr. T. S. Kirk read a short note on a case of Fat Embolism following Fracture of the Femur.—Dr. T. Houston read a paper on Bacteriological Diagnosis.—Dr. W. W. D. Thomson read notes on the investigation of a case of Chronic Interstitial Nephritis with an unusual degree of urea retention, and on certain peculiar crystals found in the cerebro-spinal fluid in a case of septic meningitis.—Sir Alexander Dempsey showed a Tumour of the Suprarenal Gland and a Cancer of the Body of the Uterus.—Mr. A. B. Mitchell showed a Carcinoma of the Penis, an Ulcer of the Stomach Resected, and a Gall-bladder containing Gall-stones.—Mr. R. J. Johnstone showed a specimen of Abdominal Pregnancy, a Tumour of the Transverse Colon which gave considerable difficulty in diagnosis, and a very large Fibroid of the Uterus.—Mr. A. Fullerton showed some Renal Calculi.—Mr. Howard Stevenson showed a specimen from a case of Acute Hæmorrhagic Pancreatitis.—Dr. C. G. Lowry showed a Fibrocystic Tumour of the Ovary which caused intraperitoneal hæmorrhage, and a Calcified Tuberculous Pyosalpinx from a woman aged 62.—Dr. G. A. Hicks showed specimens of Tuberculous Fallopian Tubes and a case of Tubal Abortion.—Dr. Thomson showed a Rapid Method of Preparing an Autogenous Acne Bacillus Vaccine, a case of Pseudochyloous Ascites in which Lactescence was due to Globulin, and Blood-films illustrating (1) blood changes in von Jaksch's disease and (2) marked mitotic changes in the megaloblasts in a case of pernicious anemia.—Mr. S. T. Irwin showed a breast with an Adenoma and Multiple Cysts.—Dr. T. S. S. Holmes showed a Kidney with Pyonephrosis.—Specimens were also shown by Professor Symmers and by Sir John Byers.—Full discussions followed the reading of the various papers.

HARVEIAN SOCIETY OF LONDON.—A clinical meeting of this society was held at the Paddington Green Children's Hospital on Jan. 28th, Dr. Edgar G. Bulleid, the President, being in the chair.—The following cases were shown:—Dr. Leonard G. Guthrie: Juvenile Tabes with Optic Atrophy in a boy suffering with congenital syphilis.—Dr. Corry (for Dr. Guthrie): Enlargement of Thyroid Gland in a child aged 6.—Dr. G. A. Sutherland: (1) Tuberculous Peritonitis, showing a very well marked von Pirquet's reaction; and (2) Congenital Pyloric Hypertrophy.—Dr. R. H. Miller: Aortic Regurgitation of recent rheumatic origin in a child.—Dr. W. H. Willcox: (1) Renal Calculus in a man who referred his pain to the side opposite to the kidney in which the stones were shown by X rays to be situated; and (2) Toxic Jaundice, due to poisoning by tetrachloride of ethane, in an employee of an aeroplane factory.—Dr. Frederick Langmead: Muscular Fibrosis in a girl aged 5. Had been under observation since 5 weeks of age for scleroderma, upon which the muscular condition had been superimposed.—Mr. H. W. Perkins showed numerous Pathological and Microscopic Specimens.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 19th, Dr. Arthur Manknell being in the chair.—Dr. William Mitchell gave an X Ray Demonstration, a large variety of plates being shown. Of special interest were a series of plates showing multiple fractures from a case of osteomalacia, and also a series showing the stomach after a bismuth meal in various gastric diseases.—Mr. W. H. Hooton showed a radiograph of both

kidneys in which were huge stones. This case was said to be unique as being the largest bilateral renal calculi on record.—Dr. A. Rabagliati read a paper on the Functions of the Connective Tissue. After minutely describing the anatomy of the connective tissue he laid great stress on the continuity of the areolar tissue throughout the body, and pointed out that this was of great importance in relation to the spread of infections. He then proceeded to elaborate a theory that the connective tissue cells were organs of sensibility inasmuch as they were the organs which received sensations, while the nervous cells and tissues carried out their function of interpreting these sensations.

Reviews and Notices of Books.

Forensic Medicine and Toxicology.

By J. DIXON MANN, M.D. St. And., F.R.C.P. Lond. Fifth edition. Revised and enlarged by WILLIAM A. BREND, M.A. Cantab., M.B., B.Sc. Lond., Barrister-at-Law, Lecturer on Forensic Medicine and Toxicology, Charing Cross Hospital. London: Charles Griffin and Co., Limited. 1914. Pp. 737. Price 18s.

THIS volume is well known, and for advanced students no better text-book can be found. In the present edition Dr. Brend, who is responsible for its production, recognising the thoroughness and accuracy which always characterised the work of the late Professor Dixon Mann, has left the main features of the book as far as possible untouched. By numerous additions he has brought it thoroughly up to date.

An account of the Mental Deficiency Act has been included. The classes of patients who are deemed to be mentally defective within the meaning of the Act are set forth, and the requirements as to the making of orders are explained. A short account is given of the Workmen's Compensation Act, 1906, and some instructive remarks are made on the difficult question of "malingerer." It is pointed out that the real fraudulent malingeringer is relatively rare in comparison with the great number of claims which are preferred under the Workmen's Compensation Act and the National Insurance Act. Dr. Brend recognises four types of cases of fraudulent claim: (1) persons who have no affection or injury of any kind; (2) those who are suffering from lesions deliberately produced; (3) those who represent old-standing disease or injury to be the result of a recent accident; and (4) those who are suffering from the effects of an injury or disease not of a serious character, and who consciously and fraudulently exaggerate their symptoms. We consider this a good practical classification, and medical examiners may simplify their ideas by acting upon it. Many cases of suspected malingering present great difficulties, but the introduction of medical referees has exercised a restraining effect in the prevention of fraudulent claims.

In discussing drugs which have been adopted for the purpose of procuring criminal abortion, attention is rightly drawn to the use of lead, most frequently in the form of pills made from diachylon. The practice appears to have originated in the Potteries, where women working with lead would be likely to discover its effects in this direction. In the part of the book dealing with toxicology an account of the law relating to the sale of poisons has been added, and recent work connected with poisoning by veronal, aspirin, carbon monoxide, lead, ferro-silicin, unsound meat, and other substances has been included.

We have referred to only those portions of the work which have been revised or which are to be found for the first time in this edition. Dr. Brend may be congratulated on the way in which he has modernized this excellent text-book, and we can cordially recommend it both to medical practitioners and students. Barristers also would find it of considerable assistance as a work of reference.

The Blood: A Guide to its Examination and to the Diagnosis and Treatment of its Diseases.

By G. LOVELL GULLAND, M.A., B.Sc., M.D. Edin., F.R.C.P. Edin., Senior Lecturer on Clinical Medicine in the University of Edinburgh, &c.; and ALEXANDER GOODALL, M.D. Edin., F.R.C.P. Edin., Assistant Physician to the Royal Infirmary, &c. Second edition. Edinburgh and London: W. Green and Son. 1914. Pp. 384. Price 15s. net.

WE are glad to welcome a second edition of this book within a relatively short time since its first appearance. Its general scope is not much altered, but it has been brought up to date and has received considerable additions in the process. For the benefit of those who are not already acquainted with the volume we may point out that the first 53 pages are devoted to methods of examination—counting, staining, and so forth; then follows a description of the formed elements of the blood, with their sources and their variations in different animals and different conditions; next comes a detailed account of the various disorders of the blood, or so-called blood diseases; and the remainder of the volume treats of the condition of the blood in other affections and of the parasitic organisms which are found in it.

Among the novel matter appearing in this edition we may mention the discussion of von Schilling-Torgau's views on the structure of the erythrocyte, according to which these cells are supplied with a nucleus, a centriole, and two peculiar intracellular bodies, the glassy body and the capsule corpuscle, giving the red cells a much more complicated constitution than is generally recognised. The authors do not discuss or criticise these views, so that we do not gather how far they accept them. We welcome their plea for the retention of Ehrlich's original classification of cases of leukaemia into lymphatic and medullary, as opposed to complicated subdivision based on special forms of leucocytes found to be present, although mixed forms must be admitted. An appendix is devoted to the question of splenectomy in pernicious anaemia—a procedure which the authors do not regard favourably, as the seat of the trouble is probably in the bone-marrow and not in the spleen. Here as elsewhere the judgment expressed is prudent and commendable.

The book is well got up and well illustrated.

Elements of Pharmacy, Materia Medica, and Therapeutics.

By Sir WILLIAM WHITLA, M.A., M.D., LL.D. Tenth edition. London: Baillière, Tindall, and Cox. 1915. Pp. xii.-680. Price 9s. net.

THE appearance of the tenth edition of a text-book bearing on the title-page the statement that it is the forty-second thousand, would almost warrant a reviewer in considering that no detailed criticism was necessary. In a brief preface, however, the author states that the advent of the new British Pharmacopœia has necessitated changes on every

page, and that the present volume may therefore be regarded as a new book. Those familiar with former editions need feel no alarm at this broad statement. The general arrangement of a wealth of material remains as before; the novelty consists in the assimilation of the changes which must be made if the book is to be brought into harmony with the new standard. The introduction of the metric system is responsible for many of the changes; much space is devoted not only to a reproduction of the tables from the Pharmacopœia, but also to several more detailed tables which will save time and calculation.

As in former editions, the author has shown an admirable discretion in separating from the official monographs just those details which are likely to be of service either to the student or the junior medical practitioner; he omits all reference to standards of purity and to arsenic limits and lead limits. On the other hand, there are many useful hints relating to incompatibility and to convenient methods of securing suitable combinations of new and old remedies. The therapeutic section has been carefully revised, and there is abundant evidence that Sir William Whitla has keenly scanned all recent therapeutic advances. The section on non-official remedies, which extends to over 130 pages, contains information relating to very numerous drugs, nearly all protected by trade names, and in many cases to be regarded as still *sub judice*. In referring to this section, students should note the care with which the author has given the names of those responsible for many of the observations; he does not always indicate that he has himself confirmed the experiences of others.

The prescriptions in the section on therapeutics will serve as good examples to young prescribers, but it may puzzle them to ascertain what system of abbreviation has been adopted. On p. 467, in consecutive lines will be found Tinct. and Tr., and Spirit. and Spt. are of frequent occurrence; nor is there any apparent reason why Syrupi should generally be written in full and sometimes be contracted to Syr. These little inconsistencies do not materially detract from the general high standard of the work for its special purpose. It may be anticipated that it will receive the cordial acceptance accorded to former editions.

The New Parent's Assistant.

By STEPHEN PAGET. London: Smith, Elder, and Co. 1914. Pp. 119. Price 3s. 6d. net.

THE charm of Mr. Stephen Paget's previous essays had led us to regard a new volume of essays by him with the feelings of a schoolboy towards a hamper from home. "The New Parent's Assistant," while consisting like his previous books of a number of individual essays, differs from them in the fact that all the essays have relation to one subject—viz., the bringing up of the child as a sound organism, physically, mentally, morally, and religiously. Mr. Paget's method of assisting the parent differs fundamentally from that of Miss Edgeworth, from whose "Parent's Assistant," needless to say, he has adapted the title. Miss Edgeworth wrote down stories told to occupy the children's attention and so keep them interested while insidiously training them on the moral lines that were the ideal of an age of sentiment. Mr. Paget deems it a more effective method to keep the parents interested while equally insidiously imbuing their

minds with a conception of the change that has taken, and is still taking, place in the old psychological order as it concerns the physical, mental, and moral relations between parents and offspring. While the reader imagines himself as merely being amused, he is, in point of fact, imbibing a wholesome draught of moral values nicely balanced so as imperceptibly to adjust the transition from the placid spirit of the eighteenth and first half of the nineteenth century to that of the adventurous twentieth.

The essays, which are nine in number (and a preface), deal with the self, the development of understanding in the child, true and false authority, understanding in relation to faith, the child's interpretation of nature (which includes a most delicate and tactful handling of the problem of sexual enlightenment), true and false discipline, a homily on the love of London—"for it is not all children who love their London as they ought"—and finally on the use of grandparents. The baby, according to Mr. Paget, is the true fountain of honour, for from the moment of his birth he sets about creating dignities and bestowing titles—"father, mother, uncle, aunt, grandpapa and grandmamma." The concluding essay, entitled "August, 1914," was written after the war began, and in it, with chastened optimism, the author looks forward to the time a few years hence when the darkness of this year shall be transfigured, and the children of his vision shall be "more grave, more patient than we were at their age; quicker to put things eternal before things temporal; more simple in their ways, more moderate in their pleasures, more careful over their words, more willing to look in the face of death, more conscious of God in their daily affairs."

The author's quaint charm of style, his unexpectedness of thought, and his wealth of application of human and scientific lore to the problem of the child, combine to make a fascinating volume.

The House-Fly (Musca Domestica Linn.); Its Structure, Habits, Development, Relation to Disease, and Control.

By G. GORDON HEWITT, D.Sc., F.R.S.C., Dominion Entomologist of Canada. Cambridge University Press. 1914. Pp. 382. Price 15s. net.

THIS book is the successor of one with a nearly identical title by the same author which was published by Sherratt and Hughes for the Manchester University Press, and reviewed in THE LANCET of July 2nd, 1910. It can, however, hardly be called a new edition of that book, as although it still contains the whole of the author's original matter from his monographs published in the *Quarterly Journal of Microscopical Science* in 1907, 1908, and 1909, the great amount of subsequent investigation on the subjects has necessitated the preparation of what is practically a new work; this is suggested by the fact that it contains 193 pages more than the previous book, although its price is 5s. less. It is intended not as a popular work but as a text-book for entomologists, medical men, and health officers. After a brief historical statement the book deals, in six parts, with the structure and habits of the house-fly, the breeding habits, the life-history and structure of the larva, its natural enemies and parasites, other species of flies frequenting houses, the relations of house-flies to disease, and control measures. The diseases discussed in relation to flies are of course typhoid fever and the summer diarrhoea of infants, also anthrax, tuberculosis,

cholera, ophthalmia, plague, small-pox, diphtheria, frambœsia, leprosy, dysentery, syphilis, poliomyelitis, trypanosomiasis, and many others. This part (V.) will be of special interest to medical men and health officers. There are some excellent illustrations, coloured and half-tone, an exhaustive bibliography occupying 36 pages, and an adequate 9-page index. As we commended the previous book, so we commend this.

Manuel de Cystoscopie.

Par E. PAPIN, Chef de Clinique des Voies Urinaires à l'Hôpital Necker. Préface par M. le Professeur F. LEGUEU. Paris: F. Gittler. 1914. Pp. 326. Price 15 francs.

CYSTOSCOPY has assumed such an important part in the diagnosis and treatment of diseases of the bladder and ureters that it is essential that this method of examination should be taught regularly and systematically. In most works on the subject the student is plunged in *medias res*, so that he is confused by being taught too much, but in this book he is introduced step by step into the subject. The instruments employed are described and the mode of using them is carefully explained. The book also contains a description of ureteral catheterisation and pyelography.

The illustrations are very numerous, and we can confidently recommend this work to any student or surgeon who reads French.

A Manual of Diseases of the Eye.

By CHARLES H. MAY, M.D., New York, Chief of the Eye Clinic, Columbia University, New York, 1890-1903, &c., and CLAUD A. WORTH, F.R.C.S. Eng., Surgeon to the Royal London Ophthalmic Hospital. Fourth edition. London: Baillière, Tindall, and Cox. 1913. Pp. 444. Price 10s. 6d. net.

THE fourth edition of this well-known text-book, which differs little, if at all, from the work which is published in America as by Dr May alone, has been revised in detail and brought up to date. There is an excellent chapter on the use of vaccines by Mr. S. H. Browning, which shows most alteration and contains many valuable hints. Reference is made in the preface to the "increased stringency and complexity of the tests required for some of the public services" for colour vision, but the Board of Trade tests for the British Mercantile Marine are quoted from regulations which have been superseded. Mr. C. Devereux Marshall has written a chapter on this subject from the standpoint of Dr. F. W. Edridge-Green's theory, which is accepted now by most ophthalmologists, though it is critically received in some quarters.

Practical Medical Electricity.

By ALFRED C. NORMAN, M.D. Edin. London: The Scientific Press, Limited. 1914. Pp. 226. Price 5s. net.

WITH regard to the title of this book it is open to question if the author has been quite happy in his choice. The student who buys this book with the idea of extending his knowledge of medical electricity proper is likely to be disappointed, since this subject is scarcely touched upon, and such references as there are, are of a very superficial character. The book is really a treatise on the various instruments used in the application of electricity in medicine and surgery; it explains their principle, construction, and mode of application with such clearness and accuracy as to make it evident that the author possesses a knowledge of

the technical side of electricity far in advance of that of the average medical man. In making the above criticism we are not to be understood as implying that there is no place for such a book as this. On the contrary, it fills a real want, and will be of the greatest value to all those who are taking up those branches of medical work where electrical appliances are largely used. To many such the technical and physical problems involved are a serious difficulty from the fact that so few medical students take any interest in electro-physics beyond the minimum required to pass a preliminary examination, and what little they learn they take no pains to remember in after years. They will find, however, in this volume a means by which they can recover many lost opportunities, and for answering the technical and physical questions that are continually suggesting themselves the book will be found most useful. Where explanation offers any difficulty the author has made use of diagrams to make the description more clear, a great improvement on the mere use of an illustration of the finished apparatus from an instrument maker's catalogue, which teaches little or nothing.

The second part of the book is devoted to X ray appliances, including a very useful chapter on the management of the X ray tube, a subject none too well understood by many of the radiographers suddenly called into being by the crisis through which the nation is now passing.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

MEDICATED GELATINE LAMELS.

(MESSRS. SAVORY AND MOORE, LIMITED, 143, NEW BOND-STREET, LONDON, W.)

We referred to this very convenient form of medicament some time ago, but at the present moment its advantages come into special prominence owing to its usefulness in field service. The lamel consists of a thin pliable gelatin sheet about 9 centimetres ($3\frac{1}{2}$ inches) long and 6 centimetres wide, divided into 24 squares. Each square contains a definite dose of medicament. The squares are marked off in grooves so that it is easy to detach one, two, or more, as the circumstances require. The specimens submitted to us included: Dover's powder, 5 grains; extract of cascara sagrada, 2 grains; chlorodyne, 5 minims; strong tincture of ginger, 5 minims; coca extract, $\frac{1}{2}$ grain; tincture of opium, 5 minims; morphine hydrochloride, $\frac{1}{16}$ th grain; Easton's syrup, 30 minims; phenacetin, 3 grains; and quinine sulphate, 2 grains. Out of curiosity as to the accuracy of dosage secured per square, we took 10 squares and estimated in them by analysis the actual amount of quinine. This yielded 1.5 grains of quinine hydrate per square, and as quinine sulphate contains 73 per cent. of quinine hydrate, the amount of quinine sulphate corresponding with this is exactly that stated—viz., 2 grains. The lamels pack quite easily in a small pocket-book, which in its turn is contained in a waterproof case to keep out damp. The complete outfit is very neat and compact, and should be of the greatest service in a campaign.

"SEMPROLIN" LIQUID PARAFFIN PREPARATIONS.

(MESSRS. WILLIAM BROWNING AND CO., 4, LAMBETH PALACE-ROAD, LONDON, S.E.)

We have already reported in these columns upon a series of semprolin preparations, their basis being a highly refined petroleum. We have now received further preparations which have recently been added to the list. The simplest preparation amongst these is a laxative cream which is stated to contain approximately 90 per cent. by volume of liquid paraffin. This figure was confirmed by our analysis, for by extraction of the cream after drying it on the water bath just short of 91 per cent. of petroleum was obtained. This form of petroleum will no doubt appeal to many patients to whom a clear oil is objectionable. The semprolin emulsion with malt contains an active extract of malt associated with petroleum, and we found present 40 per cent. of hydrocarbon. Another semprolin emulsion contains 2 grains of phenolphthalein to each tablespoonful. This particular combination has been used in the treatment of mucous colitis with encouraging results. Lastly, we examined a semprolin emulsion containing 5 grains of salol in each tablespoonful. This intestinal antiseptic is soluble in petroleum, and altogether the combination seems well adapted for the antiseptic treatment of the intestinal contents.

SURGICAL CREOSALGEN.

(MESSRS. C. J. HEWLETT AND SON, LIMITED, 35-42, CHARLOTTE-STREET, LONDON, E.C.)

On examination surgical creosalgen proved to contain just 50 per cent. of active tar acid in a completely soluble form. The clear liquid dissolves in all proportions with water, forming a bright fluid. According to the iodine combination figure of the tar acids creosalgen possesses a higher germicidal value than carbolic acid and probably nearly three times as high. The advantage of this antiseptic for surgical purposes is that in addition to its germicidal efficiency it removes grease and mucus, while it has no corrosive action on surgical instruments.

DIABETIC BISCUITS.

(MESSRS. CALLARD AND CO., 74, REGENT-STREET, LONDON, W.)

These biscuits fulfil a useful purpose in the dietary of the diabetic patient. The carbohydrates, as our analysis showed, are reduced to a minimum. In spite of this they are palatable and attractive. The specimens we received were described as "ponos" biscuits and "ponos" fingers. The analysis of the biscuits was as follows: moisture, 6.70 per cent.; mineral matter, 5.00 per cent.; protein, 61.87 per cent.; fat, 23.80 per cent.; carbohydrates, 2.63 per cent. These preparations enable the physician, when he considers such a course desirable, to give his patient alternately an allowance of carbohydrate in the shape of a standard carbohydrate—e.g., bread—and a diet practically excluding carbohydrate altogether. In this way the carbohydrate toleration of the patient can be followed.

EAU DE COLOGNE, CAERWISC BRAND.

(MESSRS. EVANS, GADD, AND CO., 100, FORE-STREET, EXETER.)

There has long been a formula for eau de Cologne which has been followed in this country. It is a quite good one, and the product is in no sense inferior to the classic one. Eau de Cologne serves a useful purpose in helping to allay congestion of superficial parts, often relieving headache

due to vascular dilatation. This specimen showed an alcoholic strength of 73.93 per cent. by volume. It possesses a fragrant and refreshing odour.

WHATMAN FILTER PAPERS.

(MESSRS. W. AND R. BALSTON, LIMITED, SPRINGFIELD MILL, MAIDSTONE. AGENTS, MESSRS. H. REEVE, ANGEL, AND CO., 15, NEW BRIDGE-STREET, LONDON, E.C.)

Many workers in the scientific laboratory will welcome the introduction of an English manufactured filter paper which gives results equal to those formerly imported from Germany. We have given the Whatman filter paper careful trial and have chosen for the purpose precipitates which are admittedly difficult to collect. Thus precipitations of calcium oxalate, cuprous oxide, and barium sulphate often give difficulty in the filtering process owing to the fineness of the particles, which easily pass through ordinary filtering materials. We found that these filter papers not only gave clear filtrates, but also that they were reasonably rapid in action. Their ash content is low, so that a correction for mineral matter is not necessary in the majority of cases. We found that the total ash obtained on incineration of the paper amounted to 0.121 per 100 parts by weight of the paper. These papers facilitate scientific work and they are an excellent filtering medium; their price is modest.

New Inventions.

A MAXILLARY SPLINT.

THIS is a light wire splint for fractures of the mandible, which maintains the fragments of the fractured bone in immobile apposition, permits movement at the temporo-maxillary joint, and preserves the normal relation of the superior and inferior maxillary bones to one another. (Fig. 1.) The splint is a modification of that of Professor Schröder; it may be adapted to any fracture of the mandible and also of the superior maxilla; moreover, it is of considerable use in cases of partial resection of the former bone and in those of bone transplantation, as it prevents dis-

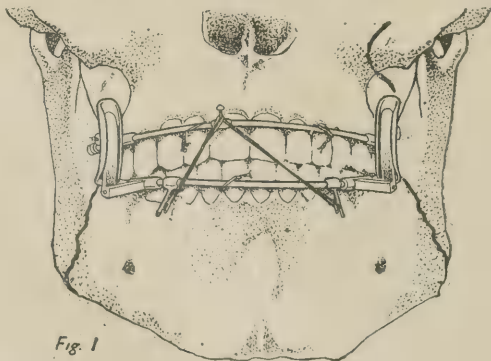


Fig. 1

placement of the healthy part of the jaw towards the side operated on. (Fig. 2.) In simple fractures accompanied by only slight displacement the splint, then consisting only of wire arch and two clamp bands, can be fitted straightaway in about half an hour, and is worn until the fracture is united. Where one cannot obtain immediate complete reduction, such as in old-standing fractures with displacement, this splint combined with an inclined plane and elastic traction (e.g., rubber band) is of much value. The constant elastic pull gradually reduces the displacement.

The splint consists (1) of two wire arches; (2) four anchor clamp bands; (3) two guiding pins, two shoes (slots), and four tubes, or instead of these an inclined plane; (4) hooks for rubber bands; (5) rubber bands; and (6) ligature wire. The use of the guiding pins and shoes, or the inclined plane, is not restricted to the wire arches alone; they can also be attached to vulcanite or metal splints in case of deficiency of teeth.

The advantages of the splint are the following:—1. It actually maintains the fractured fragments firmly in apposition and permits movement at the temporo-maxillary joint. 2. It can be kept ready in various sizes, thus enabling the surgeon to immobilise any fracture of the jaw straightaway, instead of delaying the treatment. 3. There is no need for a workshop with swaging or casting

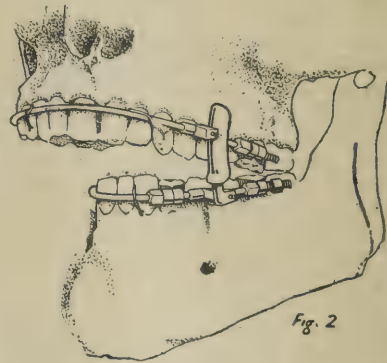


Fig. 2

appliances necessary for the making of interdental splints. 4. The patient is able to open and close his mouth 12 to 24 hours after insertion of the splint. 5. The patient does not run the risk of stiffness of the jaw through its being fixed for a long period by an interdental splint. 6. There is no possibility of a bad articulation of teeth through malunion of the fracture, as sometimes occurs with interdental splints which keep the mouth open. 7. The condition of the mouth can be kept constantly under observation, and cleanliness is easily maintained. 8. There is no unsightliness, and discomfort to the patient is the least possible with an intraoral splint.

The splint has been carefully made for me, according to my suggestions, by the Dental Manufacturing Co., Limited, Alston House, Newman-street, London, W.1. C. A. ACHNER, L.D.S. Eng.

LITERARY INTELLIGENCE.—We announced last year a forthcoming book by Sir Clifford Allbutt on "Disease of the Arteries and Angina Pectoris," to be published by Messrs. Macmillan and Co., the work being designed to appear last autumn. The two volumes were practically ready when the war naturally stopped publication. No date has yet been fixed for publication, we understand, but we hope there will be no long delay in a book that will be of great service to clinicians, we feel sure.—Messrs. J. and A. Churchill announce for publication a new (fifth) edition of Sir Henry Morris's "Human Anatomy." Different sizes of type are now employed, to facilitate the work of the student. The letterpress is accompanied by nearly 1200 illustrations, 350 of them being in colours. The same publishers are just issuing a second edition of "Squire's Pocket Companion to the British Pharmacopœia."—Messrs. Smith, Elder, and Co. announce for immediate publication a fifth and enlarged edition of Dr. Ralph W. Leftwich's "Index of Symptoms." The new edition contains a large number of new symptoms and many new tests, while the interlineary notes have been much amplified.—Mr. H. K. Lewis announces for immediate publication the sixteenth edition of the "Extra Pharmacopœia," by W. H. Martindale, F.C.S., and Dr. Wynn Westcott; this edition has been revised with the accustomed thoroughness, and amongst other additions contains a syllabus of the additions, deletions, and alterations in the new British Pharmacopœia. An eleventh edition of Swanzy's "Handbook of Diseases of the Eye" is appearing immediately through the same firm. Owing to the death of Sir Henry Swanzy since the publication of the last edition it has been revised and edited by Dr. Louis Werner, who was associated with the author in the issue of the two previous editions. Mr. Lewis has also in the press a new work on "Occupational Diseases of the Skin," by Dr. R. Prosser White, of Wigan; a translation by Dr. Henry de Meric of Delorme's "Surgery in War"; and a new edition of "Diseases of the Nose and Throat," by Dr. Herbert Tilley. This last work has been largely rewritten and the number of plates and text illustrations increased.

THE LANCET.

LONDON; SATURDAY, FEBRUARY 6, 1915.

The Annual Report of the Medical Officer of the Local Government Board.¹

A NEW annual report of the medical officer of the Local Government Board can always be relied upon to furnish a fund of information on scientific and administrative questions bearing upon the public health, and the volume now issued for 1913-14 is no exception to the rule. The variety of the subjects over which the activity of the central public health department extends is well illustrated by the reports of the medical staff and of the special investigators which Dr. A. NEWSHOLME has selected for publication. Some of these are reports on epidemics which have already appeared separately and been noticed in these columns. Dr. E. P. MANBY'S report on an outbreak of enteric fever in Kenilworth should be a lesson to those responsible for public water-supplies to make frequent surveys of the physical conditions under which the water is obtained, and not to consider that the absence of complaints or a long immunity from water-borne disease signifies that the supply is above suspicion. The report by Dr. F. R. SEYMOUR on lead poisoning at Guisborough brings out the great extent to which lesser degrees of ill-health may be found in a community dependent on a water-supply which is capable of acting on lead pipes; while Dr. H. A. MACEWEN gives an interesting account of an outbreak in South London of diphtheria which was due to milk obtained from a farm where diphtheria infection was present both on the teats of the cows and on the hands of certain of the milkers. Dr. MACEWEN also contributes to this volume the history of an outbreak of small-pox in a cotton mill at Milnrow, in Lancashire, in which infection seems clearly to have been introduced by imported raw cotton, apparently that coming from Mexico. Summaries are given of the reports of different inspectors in the medical department on the sanitary circumstances of about 50 administrative districts in England and Wales. If these are representative it must be concluded that much has still to be done by many local authorities in the appointment of a sufficient sanitary staff, the provision of isolation hospitals, attention to unhealthy conditions of housing, doubtful water-supplies, absence of sewerage, and other matters. The summaries of the sanitary conditions in Llanelly, Lley, and Aberayron suggest

that many Welsh districts in particular need strong central pressure to secure some elementary sanitary improvements which have long been effected in other parts of the country which are not usually regarded as specially progressive.

The Local Government Board has recently shown much activity in inducing local authorities to take those measures for the care and supervision of pregnant women, infants, and children under school age which are now generally grouped under the term "maternity and child-welfare work." In this organisation the woman health visitor plays an important part, and the prospects which these posts offer to educated women who desire to do good social service and are not afraid of hard work deserve to be better appreciated than they are at present. The report contains a memorandum on health visiting by Dr. J. E. LANE-CLAYPON, which deserves special attention in this connexion. Dr. LANE-CLAYPON insists that the value of the health visitor can be enormously increased if she is able to begin her work, not after the notification of a birth, but during the period of pregnancy, acting as part of the staff of a local maternity centre or clinic to which expectant mothers are encouraged to come, at any stage before their confinement, for treatment, advice, or supervision in health matters. The development of local maternity centres, health visiting, and similar undertakings for child welfare is now, we know, being facilitated by a scheme of Government grants, and Dr. NEWSHOLME'S observations on the scope and value of this work will be welcomed by medical officers of health and others who are endeavouring to secure local progress in these directions. The reports of research work carried out for the department are fewer than usual, but Dr. F. W. ANDREWES'S investigations of the causes and conditions associated with arterial degeneration are continued, and reports are issued by Dr. F. R. BLAXALL on chemical substances which can be used to supplement or replace glycerine as a means of quickly freeing vaccine lymph from extraneous organisms without prejudicially affecting its potency. Specially good results have been obtained by the use of oil of cloves in the preparation of glycerinated lymph. Foreign intelligence work in regard to exotic diseases has always formed an important part of the duties of the medical department of the Local Government Board, and we miss from the present volume the yearly account of the world prevalence of cholera, plague, and yellow fever which has long been a feature of the series. The account for 1913-14 is, however, to be issued as a separate publication. Other sections of the volume deal with the work of the inspectors of foods, and with the seasonal and local prevalence of cerebro-spinal fever and poliomyelitis.

The progress of the national measures for combating tuberculosis naturally receives much prominence in Dr. NEWSHOLME'S report. In 1912-13 the Local Government Board completed its programme

¹ Supplement to the Forty-third Annual Report of the Local Government Board. Cl. 7612. London: Wyman and Sons, Fetter-lane; Edinburgh: H. M. Stationery Office; Dublin: E. Ponsonby; Abroad: T. Fisher Unwin. Price 1s. 11d.

for notification of tuberculosis by an Order making all forms of the disease notifiable. The provisions of the National Insurance Act, 1911, as to sanatorium benefit came into operation, the capital grant under the Finance Act, 1911, of one and a half millions for the provision of institutions for the treatment of tuberculosis in the United Kingdom became available, and the Treasury decided to defray one-half of the cost of approved schemes of local authorities for the treatment of tuberculosis in so far as this was not already covered by contributions from insurance funds. During the year which followed all these measures have had to be put into working order by active organisation on the part of the central department, and very effective progress has now been made. By July, 1914, 37 out of 50 county councils and 53 out of 76 county boroughs had received official approval to what are termed "fairly complete" schemes, while others had their proposals under consideration. Only a small minority proposed schemes which were "partial" or limited to the provision of dispensaries. By the same date nearly 200 clinical tuberculosis officers had been appointed, while in nearly all cases the medical officer of health of the county borough or administrative county was appointed administrative tuberculosis officer. Dispensaries have multiplied, and much attention has been given to the provision of sanatorium and hospital accommodation for tuberculous cases. Reckoning sites for new sanatoriums and hospitals already approved, institutional provision will shortly be available for all classes of tuberculous cases at the rate of one bed for every 2557 persons in England. The provision of beds is likely to increase further, and if county boroughs generally follow the lead of Bradford and Sheffield, something like one bed per 1200 of population is likely to be needed to meet the current requirements of pulmonary tuberculosis alone. Provision of dispensaries and beds is, however, only a part of the problem if tuberculosis is to be dealt with systematically on the lines advocated by the Government departments. Success on these lines must depend on the solution of the large number of practical questions which arise in the actual working of a somewhat complicated machinery, and the medical officers and inspectors of the Local Government Board have been indefatigable in giving attention to these working details and in facilitating local arrangements. Dr. NEWSHOLME embodies some of the results in the present report, which contains observations on the classification of cases, the relation of tuberculosis officers to district medical officers of health, the duration of institutional treatment, and many other matters which will be carefully studied by those concerned with this branch of public hygiene. Reference should also be made to a useful memorandum prepared by Mr. J. E. CHAPMAN on "observation beds," based on experience at Sheffield, which sets out the advantages of attaching such

beds to tuberculosis dispensaries and placing them under the control of the dispensary medical officer for clinical observation. It seems clear that this arrangement may often prevent unprofitable demands on residential institutions.

For statistics of tuberculosis Dr. NEWSHOLME necessarily depends mainly on death-rates. Notification of new cases cannot yet be said to make a reliable basis for comparison of the prevalence of the disease either in one year with another or in one district with another district. The figures frequently show that counties and boroughs which are high on the list as regards tuberculosis notifications are low in respect of tuberculosis deaths, and *vice versa*. On the massed figures for all counties, all county boroughs, and all metropolitan boroughs there are at present for pulmonary tuberculosis from 2'0 to 2'5 notifications for every male death, and from 2'1 to 3'4 for every female death; for other tuberculosis the proportion lies between 2'8 and 4'4 notifications to each death, and Dr. NEWSHOLME considers that special inquiry into the completeness of notification is desirable in any district where the notifications of phthisis do not number more than twice the deaths from the disease. In statistical as well as in clinical matters much depends on the extent to which bacteriological aids are used in diagnosis. The report, to which we shall return in more detail in an early issue, records a considerable increase in the arrangements of local authorities for the examination of sputa, while on many other grounds Dr. NEWSHOLME lays stress on the importance of pathological laboratories being established or further developed under the auspices of county councils or municipalities.

Civilian Service and Military Claims.

THE most ardent advocate of conscription recognises that the training of the male population for complete readiness to serve their country as soldiers does not imply that they will all be serving at the same time if war should break out. In actual time of war only a certain proportion of the population can be with the colours. It is all to the good that military training should be widespread, and that material for the regiments should be recruited in a more or less trained condition; but civilian business of the country must be carried on, even with increased activity in many directions, and for this a large body of men is required. A great deal of military work, strictly military work, must be done by people who remain at home, and while some businesses will inevitably decline during war, the ordinary wants of the population at such a time are modified, not abolished. This country, for example, cannot raise, equip, and feed an army of a million without employing many thousands of people in more or less special capacities, while the bulk of the population still remain with their usual, or more than their

usual, demands to be met. In these circumstances the question is constantly arising whether in an individual instance the duty of a citizen is to continue to discharge his civilian service or to respond to the trumpet's call. In the profession of medicine and in that of education many difficult cases have presented themselves, and on looking into them it becomes clear that the decision, though regulated by the general conditions of the country, cannot be made in any general manner. There will be no universal rule that those discharging certain civilian duties are right to leave them, and that those discharging other civilian duties will be right to continue them. Every case must be thought out carefully and the decision come to with a due regard for the welfare of the people. The defence of the country by sea and land will always come first, but it must be that the cause of defence is aptly served by much civilian work. The question can never arise whether it is patriotic of, say, the official of a large railway, who has successfully been responsible for the safe conduct of hundreds of troops, and is wanted to carry on his experienced work, to take a commission as a lieutenant for the good of his country in circumstances where his special knowledge cannot be brought to bear. Here the question does not arise, because we can all see that it is for the good of his country that he should help in our defence by expediting our military movements. But there is no such clear-cut opinion to be given in the case of many other civilian occupations not so closely allied to military service, and the position of the medical officer of health or the educational medical officer is one where real difficulty arises, and where both tact and forbearance should be exercised in coming to a judgment.

The following case has struck us as admirably illustrative. The medical officer of health of the borough of Battersea has been gazetted a lieutenant in the 2nd London Sanitary Company (R.A.M.C., Territorial Force), and it may be added that in these columns we have regularly announced in an inviting manner to our readers similar opportunities. The Finance Committee of the Battersea Borough Council having recommended to the Council that their officer should be allowed the difference between his salary and his service pay and allowances during absence, the chairman of the committee, though he formally moved the adoption of this course, as a councillor spoke against it. Various councillors maintained that the work of safeguarding the health of a populous district at home was as patriotic an action as performing sanitary duties with the army, while in consequence of the growing shortage of medical men it was apprehended that there would be considerable difficulty in obtaining someone to take the vacant place. On the other side, speakers maintained that, when the country called, local matters must be disregarded and all interests sacrificed to those of the empire. These councillors

considered that their medical officer had shown true patriotism in exchanging for a subordinate military appointment with its arduous work and probable risks the safety and comfort of home, and they held that if the Council sought to restrain him from taking the commission they would expose themselves to ridicule, and if they treated him ungenerously they would incur public odium. It appeared also that the Council had passed a resolution encouraging their officers and employees to undertake military service and guaranteeing to bring their pay up to their customary salary, but it must be admitted that this resolution, though drawn up in inclusive terms, was not intended to apply to chief officers. That the Battersea councillors perceived the difficulty was shown by the fact that the voting was very close. At first the recommendation of the Finance Committee was declined by one vote, but on a division being taken the odd vote was given on the other side. A proposal to refer the matter back to the Finance Committee was lost, and the Council, by a very narrow majority, decided that the military pay of the medical officer of health should be made up to his official salary during his absence. The difficulty of deciding where the right lies in these cases is thus proved by the course of the voting at Battersea. A somewhat similar position arose at the same time at Wolverhampton, where the civilian authority took a different view with respect to their educational medical officer. At the last monthly meeting of the Wolverhampton Education Committee consideration was given to an application made by the school medical officer of Wolverhampton for leave of absence during the duration of the war that he might accept a commission in the medical department of His Majesty's forces. The committee decided that in the event of the officer accepting a commission it would be impossible satisfactorily to proceed with the school medical service under the advice of a temporary substitute, and that if the commission were accepted by the medical officer steps would have to be taken to appoint a permanent successor. The Education Committee added that if urgent need for their medical officer's services should later arise they would, of course, be willing to let him go.

The different decisions come to by equally responsible and patriotic bodies with regard to the acceptance by their senior administrative officers of commissions, together with the extreme difficulty shown by one of these bodies in coming to a conclusion, sufficiently show that there can be no general rule. The public health of the country and the maintenance of a State scheme of education upon sound sanitary lines are matters of the first importance to all. That our civilian population should not become a burden upon the public purse through sickness, and that our rising generation should be free from disease, comprise the very welfare of the nation, and it must not be lightly jeopardised; our army and navy are fighting for our existence, it is due to them

to see that we maintain an existence worth fighting for. The fighting services have the first claim on all who can serve, but the authorities who are responsible for the health and education of the public deserve to be treated with every consideration by their principal administrators. The longest possible notice should be given to them by such administrators before leave of absence is sought, and it is getting clear that the difficulty of providing substitutes must be taken into consideration. There may soon be a real shortage of medical men. We place the military exigencies first, but all care should be taken that this shortage does not occur in important administrative posts.

Annotations.

"Ne quid nimis."

THE CARE OF THOSE BLINDED IN WAR.

It is probable that of all the accidental disabilities that can befall a person in the vigour of life none is more distressing or more wholly arouses the pity of all kindly disposed persons than that of complete traumatic blindness. Plunged suddenly into a world of unaccustomed darkness without warning or time gradually to accustom himself to his changed conditions, and gradually to develop compensating methods of intelligence, his lot is terrible indeed. We understand that 22 such sufferers, including two officers and one non-commissioned officer, have up to now been returned from the front. The chances of such an accident happening are, in view of the greater dispersiveness of modern missiles, probably considerably greater than in former wars, and it behoves the country not only to make adequate provision for the skilled care of such patients in the early stages of their injury, so that whatever amelioration of the evil effects is possible may be secured before it is too late, but also to recognise the peculiarly disabling effect of such injuries and to plan for an adequate scheme of compensation. The first object has already been taken up, as was indicated in our "War" column last week, and all soldiers blinded at the front are to be sent straight to the 2nd London General Hospital at Chelsea, where provision is being made for them to receive the best of skilled attendance, so that all that can be done shall be done to mitigate the result. With regard to the second point, Mr. C. Arthur Pearson, President of the National Institute for the Blind, enters a most earnest plea in a letter to the *Morning Post*. He calls attention to the pressing need for special consideration as regards the question of adequate pensions and allowances, for, as he rightly points out, there are many directions in which a blind person has to bear expenses not imposed on those who can see—e.g., the necessity for a guide, which doubles the expenses of travelling. We trust that systematic efforts will be made to deal in a generous spirit with this large subject.

A NEW DISEASE OF RODENTS TRANSMISSIBLE TO MAN.

ABOUT three years ago, when Dr. G. W. McCoy, of the United States Public Health Service, was investigating the distribution of plague among the hordes of ground squirrels which infest many parts of the State of California, he discovered among them what appeared to be a new disease. In conjunction with Dr. Charles W. Chapin he subsequently made a series of experiments on these rodents, as well as on guinea-pigs, white rats, and grey mice, and found that while the lesions caused by the new malady resembled those of plague, further examination demonstrated that the disease was due to a specific organism to which the name of *Bacterium tularense* was given. Later it was shown that monkeys were also susceptible to this infection, and it was in consequence expected that the disease would be found in man. In a recent communication published in our American contemporary, *Public Health Reports* for Dec. 18th last, Professor W. B. Wherry, of the University of Cincinnati, describes two human instances of this new malady, in which the chief symptoms were acute ulcerative conjunctivitis with enlargement of the preauricular and cervical glands, fever, and marked prostration. The first patient was a man employed as a meat cutter in a cheap restaurant, the second being a farmer's wife. In searching for the source of infection in these human cases Professor Wherry's suspicion fell on ground game, and shortly afterwards it came to his knowledge that wild rabbits were dying in large numbers in Kentucky and Indiana. He procured two of these dead rabbits for examination, and both of them showed the gross lesions caused by *B. tularense*. Inoculation experiments on laboratory animals conclusively confirmed the diagnosis. One of the above-mentioned patients lived about six miles from the spot where the two dead rabbits were picked up. Professor Wherry believes that this new disease of rodents may be widely distributed and that extensive epizootics may occur with comparative frequency. Both of the persons who were attacked admitted that they had lately been cutting up wild rabbits in preparation for cooking; it is thought probable that they conveyed the virus by unwashed hands. On the basis of animal experiments it is regarded as possible that ulcerative rhinitis, ulcerative or membranous sore throat, gastro-intestinal infection or lymphadenitis, secondary to the skin affection, may also occur as results of the infective process. Susceptible rodents can be infected by feeding or by the introduction of infective material into the eye or nose, or through an abrasion of the skin. McCoy and Chapin, while searching for a mode of transmission of the disease among ground squirrels, succeeded on two occasions in conveying the malady by means of squirrel fleas. Assistant Surgeon N. E. Wayson, of the United States Public Health Service, has published a paper in which he describes the possibility of experimentally transferring *B. tularense* from infected material to healthy rodents through the agency of stable-flies and also common house-flies. Whether this mode of transmission occurs in nature is not yet proved, but Dr. Wayson is continuing his investigations. As regards prophylaxis, Professor Wherry thinks it advisable to warn all persons who in the course of their duties have to cut up or handle wild rabbits to wash and scrub their hands very carefully

after touching the animals, so as to prevent the transference of the virus to the eyes or other parts of the body where *B. tularensis* might find a point at which to effect an entrance into the human system.

THE TREATMENT OF WOUNDS IN WAR.

It is very important that we should not fail to recognise that in new conditions new forms of treatment may be needed. In the present war the conditions are in many respects very different from those met with in civil life, and even from those encountered in previous wars; therefore it is necessary that surgeons should have an open mind to consider without prejudice any new method of treatment which may be brought forward. In the present number of THE LANCET we publish a method of treatment of contused and lacerated wounds which Dr. Louis Menci re has employed widely during the present war, and with which he has achieved no small measure of success. It consists essentially in a very free use of antiseptics in the wound, preference being given to the successive application of perchloride of mercury, carbolic acid, and peroxide of hydrogen. This treatment is followed by the daily use of an antiseptic lotion, which he claims destroys septic organisms while not interfering in any way with the life of the cells of the tissues. Dr. Menci re gives a full account of the mode of application of his method in his paper, and to that we refer the reader for fuller particulars.

PITUITRIN IN ACUTE HEART FAILURE.

THE marked action of pituitrin on unstriated and striated muscular fibre, and especially its action on the uterus, has led Professor Zueblin, of the University of Maryland, to use the drug in a condition for which it does not appear to have previously been recommended—failing heart when there is demanded an immediate effect which cannot be obtained from the usual cardiac remedies (digitalis, strophanthus, &c.). In the *Boston Medical and Surgical Journal* of Dec. 24th, 1914, he has reported a series of seven cases thus treated, of which the following are examples. A poorly nourished man, aged 33 years, was suffering from syphilis, nephritis, and acute dilatation of the heart. The pr cordial region was bulging and the apex beat was in the seventh interspace in the anterior axillary line. Cardiac dulness extended 5½ inches to the left and 3 inches to the right of the mid-sternal line. A double blowing murmur was heard in the mitral and tricuspid areas. The second pulmonic sound was accentuated. The pulse was 115. One cubic centimetre of pituitrin was injected subcutaneously. On the following day the apex beat was inside the anterior axillary line and cardiac dulness extended to the right sternal border. The pulse was 95 and the patient felt more comfortable and showed marked improvement. A course of digitalis was then given and he gradually improved. The reduction of the cardiac dulness under the pituitrin was remarkable; the transverse diameter diminished 2½ to 3 inches in the 24 hours. In another case a carpenter, aged 66 years, was suffering from aortic stenosis. The pr cordium bulged; the apex beat was in the sixth intercostal space outside the nipple line. Cardiac dulness extended 5½ inches to the left of the mid-sternal line and 2½ inches to the right. One cubic centimetre of pituitrin was given. On the following

day cardiac dulness extended 4½ inches to the left and ½ inch to the right of the midsternal line. The pulse, which previously was 78, had fallen to 70. The transverse diameter of the cardiac dulness was reduced by 3 inches. In a third case a man, aged 60 years, was suffering from chronic myocarditis, general arteriosclerosis, chronic nephritis, and anasarca. The heart was so dilated that dulness extended 5½ inches to the left and 3½ inches to the right of the midsternal line. There was a double murmur over the mitral and tricuspid areas, with an accentuated second pulmonic sound. Under digitalis and strophanthus he did not improve. There was fluid in the left pleural cavity reaching as high as the fourth interspace. The patient was dyspno ic, restless, and cyanotic. The pulse was 110, irregular, and compressible. There were albumin and granular casts in the urine. Pituitrin was given, and 24 hours later cardiac dulness extended 4½ inches to the left and 1½ inches to the right of the midsternal line, and the pulse was 80. However, death took place two days later. Notwithstanding advanced disease the diameter of the cardiac dulness was reduced 2½ inches in the 24 hours. Professor Zueblin's cases are suggestive, but not numerous enough for generalisation. It must also be borne in mind that several writers consider heart disease, arteriosclerosis, and kidney disease contra-indications to the use of pituitrin. It may be remembered that obstetricians have also issued warnings against indiscriminate use of the drug. In the case of arterial disease in the aged a sudden increase of blood pressure produced by pituitrin might cause apoplexy. Under such conditions the drug should therefore be given with caution.

CEREBELLAR SYMPTOMS AND LOCALISATION.

As has not infrequently been the case in the history of medicine, the functions of an organ may appear to be established so satisfactorily by experimental and clinical evidence that under the influence of teaching and text-book description they become "classical." Then in turn the "classical" view is questioned, and after a longer or a shorter period the older terminology disappears as fresh data result in the adoption of an entirely new method of envisaging the clinical facts, which evidently have not themselves changed. Our knowledge of the functions of the cerebellum has been passing through such a transformation. The student has been taught that the "classical" symptoms of cerebellar disease are a swaying, staggering gait, forced movements—"lurching" in one direction or another—ataxia of the limbs, nystagmus, and vertigo. But gradually research has commenced to dismember this cerebellar complex. It is tolerably clear that nystagmus and vertigo are due to concomitant disturbance of the vestibular apparatus at least as much as to implication of the cerebellum itself, if not indeed really independent of cerebellar activity. The familiar ataxia is now known to be a symptom-complex rather than a pure symptom, and its place is being taken by a newer conception, asynergy. In an interesting review of the present situation as regards cerebellar disease in the *Journal of the American Medical Association*, Dr. C. K. Mills and Dr. T. H. Weisenburg, of Philadelphia, define synergy as the power or faculty by which movements more or less complex, but functionally definite, are associated in a special act or acts. In a broad sense it is motor association, this

association being carried out in movements of different parts of the same limb or in synchronous movements of the trunk and limbs, or of the head, trunk, and limbs. When it is defective from cerebellar disease, motor adjustments are mis-measured, and the result is termed dysmetria. This is the expression which is now replacing ataxia. Analysis of the defective movements of the cerebellar patient has been rendered more exact by recourse to the kinematograph. In this way the components of the defective movements are readily traceable, and the contention of the more recent investigators of cerebellar function has been corroborated that the underlying basis of cerebellar symptomatology is asynergy revealing itself in dysmetria. The physician should note, further, that defect in motor adjustments is discoverable not merely in the cerebellar patient's gait, but also in the use of his limbs, unilaterally or otherwise, or in segments of the limbs, as well as in speaking, eating, and in much else that is done by him. This leads in its turn to a further modern conception of great importance—viz., the possibility of localisation in the cerebellum. By means of the kinematograph Dr. Mills and Dr. Weisenburg have shown that asynergy may be confined to the pelvic girdle or to the shoulder girdle, the gait being different in the two cases, though equally cerebellar. They have analysed cases, familiar enough to the neurologist, in which the dysmetria was confined to one limb. They have recorded a case of hæmorrhage into the antero-superior portion of the cerebellum in which the patient showed exquisite asynergy in his tongue, facial and laryngeal movements only. Mastication and deglutition were almost impossible because of the asynergy of the involved musculature. It is true that more research, clinical and pathological, is requisite ere a map of localised cerebellar function can be made out, but the evidence at present available indicates that on the superior surface of the cerebellum the head and eyes, face, jaws, tongue, larynx, pharynx, neck, and trunk are represented more or less in the middle line, and posteriorly round to the inferior surface in the middle line (vermis). On the superior surface, laterally, is the focus for the upper extremity, right and left respectively, with abduction, adduction, extension, and flexion separable. On the under surface is the centre for the lower extremity, in an analogous fashion. It is desirable to recognise that this cerebellar "localisation" is not so precise as cerebral localisation. There is not likely to be an exclusive localisation for a limb or segment of a limb in the cerebellar cortex. Synergic activity of the musculature of the body is so complex that cerebellar localisation must be compound, as it were. But the authors insist with reason that a composite has always within it factors or elements which can to a greater or less extent be separated from the entire mass. The practical significance of recent work on the cerebellum and its activities is that diagnosis becomes distinctly more exact.

VAGOTROPISM IN INFLUENZAL INFECTION.

E. Paganelli has recently drawn attention in *Il Morgagni* to the fact that the Stokes-Adams syndrome is occasionally met with in an acute form during an attack of influenza, and has shown in four patients that bradycardia and neurocentral phenomena peculiar to the Stokes-Adams syndrome, such as syncopal and vertiginous attacks with vomiting, may occur

as a special characteristic in some epidemics of this disease. The author's cases afford evidence that bradycardia and the rest of the syndrome may be considered due to an affinity of the toxin towards the vagus without the occurrence of myocardiac lesions or lesions of the nervous centres. The characteristics of the condition were sudden onset, marked instability of the bradycardia and its modification by the action of belladonna and atropine, a cardio-systolic arterial pressure raised in comparison with a co-existing arterial hypotonia, and a more or less rapid recovery. The attacks were of variable duration from a few to several hours, and repeated in some of the patients at intervals of some hours or even of days. The clinical picture was one of gravity, yet in the epidemic of influenza referred to by the author the condition was met with only in four instances out of 40 cases during two months, nor was the course of the disease appreciably aggravated by the occurrence of such acute symptoms.

SELF-REGULATION OF THE GASTRIC ACIDITY.

For a considerable time in medical science it has been the established conviction that the acidity of the gastric juice—i.e., the quantity of free hydrochloric acid in man and animals—usually varies from 0.1 to 0.2 per cent. This figure was arrived at by examining the stomach contents but not the pure juice. It was, however, astonishing to find that in the dog's stomach, an isolated portion, the acidity was as high as 0.5 to 0.6 HCl; the same applied to rabbits and cats. Later the pure juice of the stomach was obtained in human beings, and in them also the acidity was from 0.32 to 0.47 per cent. The acidity is also constant. Clinicians, however, still accepted this as definite hyperacidity. And this because no one could explain why the gastric juice from the whole normal stomach as distinguished from isolated portions should almost always contain a lower concentration of acid. The answer now is that the acidity of different acid fluids introduced into the stomach is reduced during their stay in that organ; the reduction of acidity applies also to its own acid juice. How is such reduction effected? Professor Boldyreff, in the *Quarterly Journal of Experimental Physiology* (1914, vol. viii., p. 1), quotes some conclusive experiments to show that such reduction is effected by the alkaline pancreatic juice which regurgitates into the stomach, such action being itself initiated by the acidity. The experiments were performed on dogs. Ligature of the pancreatic ducts results in a definite delay of reduction of acidity; and not only so, with such delay there is also a lessening in the rate of emptying from the stomach. Ligature of other sources of alkali, such as the saliva or the bile, was followed by much less evident diminution of acidity. The fact, too, that the concentration of chlorides in the stomach remains constant shows that reduction of acidity is not due to absorption of the acid by the gastric mucous membrane. In absence, however, of pancreatic juice the acidity can be to some extent lowered by the abundant influx of bile and intestinal juice. Apparently there is a general law which extends to all cases. A portion of the strong acid fluid passing from the stomach into the intestine provokes an abundant secretion, especially of the pancreatic juice; it, moreover, provokes antiperistalsis in the intestine, which drives the alkaline secretion into the stomach until a

sufficient quantity accumulates which is capable of bringing the acidity to the level of about 0.15 per cent. HCl. It is thus easy to reconcile the results obtained by physiologists and clinicians. The initial acidity is 0.5; the final acidity is about a third of this, a degree at which protein digestion in the stomach is most favoured. These facts suggest an explanation of the rapid emptying of the stomach, which radiologists note as indications of duodenal irritation. Many other clinical findings may be illuminated by these useful observations.

PARLIAMENT reopened on Tuesday last, the proceedings being mainly Government business.

The Hunterian Oration will be delivered at the Royal College of Surgeons of England, Lincoln's-Inn Fields, on Monday, Feb. 15th, at 4 o'clock, by the President, Sir W. Watson Cheyne, who has chosen as his subject *The Treatment of Wounds in War*.

THE CHADWICK LECTURES ON WAR AND DISEASE.¹

THE last of the three lectures organised by the Chadwick trustees was delivered at the Royal Society of Arts on Jan. 29th by Colonel F. M. SANDWICH, M.D., the subject being "*The Great European War*." The chair was occupied by Sir H. TRUEMAN WOOD, secretary of the Royal Society of Arts, and the attendance was again a large one.

Colonel SANDWICH said that every campaign had its peculiar medical dangers, and in such a gigantic war as the present one the dangers were manifold, depending on the climate, the people, and even the soil in the fighting areas. Whilst cholera and other diseases were menacing the German and Russian troops, we could recognise the fact that the attention given to hygiene, besides the value of antityphoid inoculation, saved our troops from great loss due to disease. The sick-rate of our troops now at the front was only 3 per cent., and among the Indian troops it was said to be even lower. The following figures relating to typhoid fever were now issued. In the first 421 cases of typhoid fever among the British troops in this campaign 305 were in men who had not been inoculated. In the 421 cases there were 35 deaths, 34 of them in men who had not been inoculated within two years, the other was in a man who had been inoculated once.

One source of trouble in the past had been wound poisoning caused by dirt, and resulting in gangrene and tetanus. The latter had attacked the wounded of our own and the enemy in about equal degree. Generally its spasms were more exhausting than painful; but there was great suffering when the patient had an extensive wound, and the spasms might produce agonising pain. In the worst cases a fatal end was generally reached on the third day, and the symptoms of the disease usually commenced about ten days after the injury. When this interval was abbreviated the case seldom recovered. In the Aisne district tetanus was common among the ordinary population. Brilliant results had followed the use of antitetanic serum prophylactically. The earlier the prophylactic dose was given the more certain was its good effect, but by the time the symptoms were well established the disease had made great progress. The practice now was the following. On the reception of a wound the first field-dressing, consisting of a pad of gauze, was applied by a surgeon, a comrade, or by the patient himself. On arriving at the field ambulance this dressing was changed and the patient removed to the clearing hospital, where the wound was cleaned, if possible, and painted freely with a solution of iodine in spirit. Where needed, the dressing was repeated during the journey to the column or base. Since November a prophylactic injection of antitetanus serum was given to all wounded either at the clearing hospital or the field ambulance. Thanks to the generosity of two anonymous

donors, a much-needed improvement in the medical service had lately been added. Hitherto each man had not, like the French soldier, carried his own iodine, but now he did so, in a little glass ampoule, put up by English manufacturers. The importance of this provision it was difficult to overrate.

Gangrene had also claimed its victims in this war owing to the soiling of the wounds, the causal bacillus being that responsible for malignant oedema. The work of Pasteur and Lister finally disposed of the idea that "wound fever" and "hospital gangrene" were spontaneously generated. In 1868 the mortality after amputations in France was 60 per cent.; and a well-known surgeon at the Charité Hospital said, "When an amputation seems necessary think ten times about it, for, too often, when we decide upon an operation we sign the patient's death-warrant." The bacillus of gas gangrene, being an anaerobe, did not infect superficial wounds, but multiplied in deep wounds and lacerated tissue. He described the usual course of a case of gas gangrene and narrated a typical instance. The subjects of it must be strictly isolated from other wounded men. In the Turkish War of 1877 the Turkish and Greek doctors in charge had no disinfectants except a few basins of quicklime. Repeated attempts had been made to supply a vaccine to counteract the bacillus of gangrene, but nothing had yet been achieved to warrant its use on man.

Frost-bite was always liable to occur among troops in cold weather, especially when a high wind prevailed; and if frost-bite did not receive prompt attention it might end in gangrene; and the patient might not be aware of the transition because the freezing process was not a painful one, though that of inducing the blood to return to the part was attended with pain. Sudden warmth killed the tissue and thus precipitated gangrene. In January, 1878, the cold was so intense that 18 of Baker Pasha's sentries were frozen to death in one night, and it became necessary to change the sentries every 15 minutes. Some of the cases of frost-bite in the campaign were grotesque in their ghastliness. Our well-fed and well-clothed soldiers were not likely to suffer so severely from frost-bite, especially as the women of England had shown a veritable passion for knitting warm articles for the soldiers. The problem as to the best clothing for the men in the cold, wet trenches would not be solved by supplying waders, for occasions arose when the soldiers had to move quickly, either in attack or retreat. Perhaps the rubbing of some kind of grease (which would not mix with water) all over the body would be found of some avail. This war differed from other campaigns in its uninterrupted violence. In other struggles there had been lulls during which the combatants could rest and recuperate after periods of excessive strain, for those who had not been at the firing line could not realise the effect on the nerves produced; and the men could only be ensured some respite by organising relays of relief troops. When the first batch of 230 wounded arrived at one of the London hospitals they were in such an exhausted condition that very little could be done for them beyond getting them to bed quickly. They slept the sleep of utter exhaustion, and next day had to be aroused to be washed. But after the first 30 hours they suffered from sleeplessness; they slept lightly, and frequently awoke with a start and shouted, believing they were still being attacked in the trenches. They were not lacking in courage, but the nerve strain had been excessive, though a complaint was practically never heard. Sometimes the shell fire had caused transient paralysis of the lower limbs, loss of sensation to heat and cold, and defective vision.

Dr. Sandwith spoke of the plague of vermin which attended campaigns. Bugs were bearers of certain tropical diseases, and lice were believed to convey dread diseases which had played havoc in camps in the past. The psychic feeling of disgust at harbouring these pests in men who had been accustomed to clean living was a factor to be reckoned with. It was difficult to cope with the trouble, but instructions had been issued to the troops which it was hoped would minimise it.

Relapsing fever was a febrile illness due to spirochæta in the blood. The mortality from it was not high, but the attendant weakness incapacitated the patient for a long time. Lice had long been suspected as the carriers of relapsing and typhus fevers, but an important factor in the process seemed to be the scratching of the irritating lesion. Lice must be regarded as a menace to ultimate victory, and

¹ Reports of the first and second lectures appeared in *THE LANCET* of Jan. 23rd (p. 105) and 30th (p. 247) respectively.

we could not contemplate defeat by disease any more than by armies; hence every soldier should be impressed with the necessity of ridding himself of these pests.

This lecture was also illustrated by some very interesting slides, and the thanks of the audience, voiced by the chairman, were very warmly accorded to Dr. Sandwith.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

A COMITIA was held on Jan. 28th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following gentlemen having passed the required examination were admitted Members of the College: Jivraj Narayan Mehta, M.D. Lond., L.R.C.P., John Tattersall, M.D. Lond., L.R.C.P., and William Wilkinson Uttley, M.B., Ch.B. Vict., L.R.C.P. (Lymm, Cheshire).

Licences to practise physic were granted to 114 gentlemen who had passed the necessary examinations.

Diplomas in Public Health were granted jointly with the Royal College of Surgeons of England: Kishori Lal Chandry, M.B., B.S. Punjab, Punjab and University College; Noormahomed Kasembhai Chohan, L.M. & S. Bombay, Bombay and Cambridge; Herbert William Fankhauser, M.B., Ch.B. Melb., Melbourne and R.I. Pub. Health; Thomas Marlin, M.D., Ch.B. Glasg., Glasgow and University College; Lucy MacBean Ross, M.B., Ch.B. Glasg., Glasgow and University College; and Andrew James Shinnie, M.D., Ch.B. Aberd., Aberdeen and University College.

The PRESIDENT announced that he had appointed Dr. Sidney Coupland to be the Harveian orator for 1915, and Dr. J. Michell Clarke to be the Bradshaw lecturer for 1915. Also that the Council had appointed Dr. Samson G. Moore (medical officer of health of Huddersfield) to be the Milroy lecturer for 1916.

The following communications were received. From the Secretary of the Royal College of Surgeons of England, dated Dec. 12th, 1914, and Jan. 15th, 1915, reporting proceedings of the Council of that College on Dec. 10th, 1914, and on Jan. 14th, 1915, respectively.

Dr. A. G. Barrs, Dr. H. G. Turney, Dr. H. Morley Fletcher, and Dr. L. Humphry were elected councillors.

Sir Francis Champneys, Bart., was elected a Representative of the College on the Central Midwives Board for one year from April 1st next.

Mr. Mark Lemon Romer, K.C., was elected a senior standing counsel to the College in the place of Lord Parmoor.

Sir Dyce Duckworth, Bart., was re-elected as Representative Member of the Court of the University of Liverpool. Dr. S. H. West was re-elected a Representative Member of the Court of Governors of the University of Birmingham.

A report was received and adopted from the representative of the College on the General Medical Council.

After some further formal business the PRESIDENT dissolved the Comitia.

TYPHUS FEVER IN DERRY.—An outbreak of typhus fever has occurred in Derry to the extent of nine cases in the lower-lying badly drained parts of that city where there are many dry closets. It is hoped that the epidemic is now over.

THE WOMEN'S IMPERIAL HEALTH ASSOCIATION.—The annual meeting of this association was held at the offices at 7, Hanover-square, W., on Jan. 20th, when Dr. R. Murray Leslie took the chair. He reviewed the year's work of the association, the last five months of which had been largely influenced by the war. Among many other activities the association had undertaken the organisation of the Health and Social Section of the Women's Emergency Corps, and had registered over 1900 voluntary workers and placed 1364 of these in useful work. The association had also started a Women's Club. The chairman referred also to the many other branches of work, all of which had been proceeding satisfactorily. The annual report can be had on application to the secretary.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet-Surgeon William Ernest Marshall has been placed on the Retired List (dated Jan. 20th).

The following appointments are notified:—Fleet-Surgeon: W. H. O. Garde to the *Revenge*. Surgeon: M. F. Caldwell to the *Vivid*, additional, for disposal. Temporary Surgeons: W. H. W. Cheyne to the *Soudan* Hospital Ship; J. S. Jobson to the *China* Hospital Ship; W. L. Anderson to the *Pembroke III* for R.N. Air Service; and F. A. Williamson to the *Pembroke*, additional, for disposal.

The undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet:—David Revell Bedell-Sivright and George Stivala Aspinall.

ROYAL NAVAL RESERVE.

The undermentioned Acting Sub-Lieutenant has been promoted to the rank of Sub-Lieutenant:—Dated Dec. 2nd, 1914: Nigel Adrian Macqueen.

The undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet:—Dated Jan. 26th: Weir Burns Cunningham and William Little Glegg. Dated Jan. 27th: Alfred George Stewart and Dundas Simpson MacKnight.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon: T. Turner to the *Pembroke*, additional, for Chatham Hospital.

ARMY MEDICAL SERVICE.

Colonel Robert Porter is retained on the Active List under Article 120 Royal Warrant for Pay and Promotion, and to be Supernumerary (dated Jan. 31st).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors:—Dated Jan. 31st: Albert E. B. Wood, James B. Meldon, Charles Bramhall, and Henry T. Stack.

The undermentioned Lieutenants to be Captains:—Dated Jan. 28th: Basil H. H. Spence, William B. Laird, Robert Davidson, Herbert S. Blackmore, James M. Elliott, Francis R. B. Skrimshire, Douglas W. Bruce, Thomas E. Osmond, Richard T. Vivian, Edward G. H. Cowen, Leonard Buckley, William L. Webster, Edward B. Allnutt, Stanley P. Sykes, Harry C. Todd, Henry J. G. Wells, Ernest C. Deane, Frank S. Tamplin, Ivor R. Hudleston, William Stewart, Alexander G. J. MacIlwaine, and Arthur S. Heale.

The undermentioned officers, Home Hospitals Reserve, are granted the temporary rank of Captain:—Dated August 6th, 1914: J. E. Moorhouse. Dated August 14th, 1914: D. M. Barry. Dated Jan. 4th: A. B. Leakey.

The undermentioned to be temporary Captains:—Dated Dec. 28th, 1914: Temporary Lieutenant Robert Higham Cooper. Dated Jan. 6th: Charles Ravenscroft Stewart. Dated Jan. 15th: Henry Wynyard Kaye.

The undermentioned to be temporary Lieutenants whilst serving with the Red Cross Hospital, Netley:—Dated Jan. 19th: Donovan Blaise Pascall and Walter Gibson Marsden.

The undermentioned to be temporary Lieutenants:—Dated Oct. 12th, 1914: Alfred Squire Taylor. Dated Dec. 18th, 1914: Edward Forbes. Dated Jan. 1st: Robert Hilton Hutchinson, William Herbert Clements, and James Douglas Driberg. Dated Jan. 2nd: Ernest Leon Maunsell Hackett, Conwy Llewellyn Morgan, and Anthony Hagarty Corley. Dated Jan. 4th: Ralph Anderson Hughes. Dated Jan. 7th: Harold Benjamin Day, Harold Kempsey, Thomas Burns Marshall, Daniel Brough, Edward Verdon Russell Fooks, Thomas Langton Butler, George Fitzjames Darker, Herbert Eustace Clarke, Robert Wilkinson Greatorex, and Howard George Pesel. Dated Jan. 9th: Robert Cecil Leonard, Jerome O'Flynn, and Bernard Charles Tennent. Dated Jan. 10th: Arthur Riley, Frederick Harris, William Edgworth David, Walter Timothy James, Robert Kay Nisbet, and Thomas Marron. Dated Jan. 11th: Henry Speldevinde de Boer, George Alexander Connell Gordon, and David Heron. Dated Jan. 12th: Humphrey Rivers Pollock, Cyril Aubrey Smallhorn, Bernard Ernest Wall, Robert James D'Arcy Irvine, Finbar John Hunt, Albert Jones, Robert Francis Jones, Robert Yelverton Stones, and George Oliver Maw. Dated Jan. 14th: Arthur Hines. Dated Jan. 15th: Walter Winslow, Douglas Green, Arthur Charles Douglas Firth, Cecil Banting, Claude Hollingworth Philips, Thomas Joseph Kelly, Clive Justin Hicks Sharp, Charles Francis Orr White, Robert Campbell Begg, Ernest Stewart Dixon, and Maurice Mackenzie.

The undermentioned relinquish their temporary commissions with the Allied Forces Base Hospital:—Dated Feb. 1st: Captain Norman Duggan, Captain Sidney B. Radley, Lieutenant Douglas E. Derry, and Lieutenant Robert Henry Liscombe.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant William O. Lodge resigns his commission.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Scottish Horse Mounted Brigade Field Ambulance: John Eaton Lascelles to be Lieutenant.

3rd West Riding Field Ambulance: Lieutenant Ernest White, from Attached to Units other than Medical Units, to be Lieutenant.

3rd Southern General Hospital: Major Arthur P. Dodds-Parker to be Lieutenant-Colonel (temporary). Captain Robert Ritson to be Major (temporary).

1st London (City of London) Sanitary Company: William Dyer Frazer (late Surgeon-Captain, Rand Rifles) to be Lieutenant.

2nd South-Western Mounted Brigade Field Ambulance: Major John R. Benson to be Lieutenant-Colonel (temporary).

South-Eastern Mounted Brigade Field Ambulance: Charles Edward Silvester (late Surgeon-Captain, Surma Valley Light Horse) to be Lieutenant.

1st Northern General Hospital: James Leslie Wilson (late Second Lieutenant, Unattached List for the Territorial Force) to be Captain, whose services will be available on mobilisation.

2nd Southern General Hospital: Robert James Irving to be Lieutenant.

4th Scottish General Hospital: Lieutenant James H. Martin, from Attached to Units other than Medical Units, to be Captain, whose services will be available on mobilisation.

Sanitary Service: Major Charles M. Fegen, from 2nd London Sanitary Company, to be Sanitary Officer of the 2nd London (Reserve) Division.

Supernumerary for Service with the Officers Training Corps: The undermentioned to be Lieutenants for service with the Medical Unit, University of London Contingent, Senior Division, Officers Training Corps: William Gilliat, Richard Drummond Maxwell, and John Henry Ryffel.

North Midland Mounted Brigade Field Ambulance: Arthur Wellesley McClelland to be Lieutenant.

3rd Home Counties Field Ambulance: Captain William D. Sturrock, from the Unattached List for the Territorial Force, to be Captain (temporary).

3rd South Midland Field Ambulance: Lieutenant James G. McLannahan, from Attached to Units other than Medical Units, to be Lieutenant.

Attached to Units other than Medical Units.—Captain Lawrence C. V. Hardwicke is seconded. Lieutenant Gerald R. Rickett to be Captain (temporary). Lieutenant George F. R. Smith is seconded. To be Lieutenants: Joseph Patrick Fagan and Evan David Richard. Lieutenant Patrick Black and Lieutenant Kenneth Mackinnon resign their commissions.

Unattached List for the Territorial Force.—Second Lieutenant James L. Wilson resigns his commission.

Officers Training Corps.

University of London Contingent, Senior Division: Lieutenant Philip Henry Mitchiner to be Captain (temporary).

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force:—Army Medical Staff: Colonel James Harper. Royal Army Medical Corps: 1st West Lancashire Field Ambulance: Lieutenant-Colonel John J. O'Hagan and Major Henry D'A. Blumberg (attached to the 7th Battalion, The King's (Liverpool Regiment)).

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The November, 1914, issue of this journal, publication of which has been delayed owing to the war, contains among articles of topical interest a communication from Lieutenant-Colonel C. B. Lawson and Lieutenant Beckwith Whitehouse detailing the method of treating acute emphysematous gangrene by injection of hydrogen peroxide, which was referred to in a leading article in our columns last week. Colonel Sir Anthony A. Bowlby and Lieutenant S. Rowlands's joint report on gas gangrene, which was published in THE LANCET of Nov. 28th, 1914, p. 1265, also finds a place in this issue. Captain R. G. Archibald contributes a preliminary report on Some Further Investigations on Kala-Azar in the Sudan, and Colonel T. W. Gibbard discusses the apparatus required and the technique employed in the intravenous injection of neosalvarsan in concentrated solution.

DEATHS IN THE SERVICES.

Lieutenant-Colonel Robert Burnet, 1st Wessex Field Ambulance, Territorials, on Jan. 28th, the result of an accident while riding between Newton St. Cyres and Exeter. Lieutenant-Colonel Burnet was medical officer of health for Cornwall.

Colonel Richard Exham, C.M.G., late R.A.C.M., recently, in his sixty-seventh year. He entered the army in 1871, and served in the South African War, 1899-1901, when he was principal medical officer to the Natal Field Force, and was present at the defence of Ladysmith (twice mentioned in despatches, and Queen's medal with four clasps). He retired in 1903.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8938 births and 6693 deaths were registered during the week ended Saturday, Jan. 30th. The annual rate of mortality in these towns, which had declined from 21.3 to 18.0 per 1000 in the four preceding weeks, rose in the week under notice to 19.2 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first four weeks of the current quarter the mean annual death-rate in these towns averaged 18.9, against 19.6 per 1000 in London. The annual death-rate last week ranged from 9.9 in Swindon, 10.3 in Edmonton, 11.3 in Grimsby, 11.7 in Hornsey, and 13.1 in Wimbledon, to 28.8 in Merthyr Tydfil, 29.1 in Wigan, 30.0 in Ipswich, 30.3 in Rotherham, and 23.6 in Carlisle.

The 6693 deaths from all causes were 434 in excess of the number in the previous week, and included 483 which were referred to the principal epidemic diseases, against 454 and 479 in the two preceding weeks. Of these 483 deaths, 191 resulted from measles, 99 from whooping-cough, 77 from diphtheria, 73 from infantile diarrhoeal diseases, 31 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.4 per 1000, and coincided with that recorded in the previous week. The deaths attributed to measles, which had been 183, 195, and 206 in the three preceding weeks, fell to 191 last week, and caused the highest annual death-rates of 1.8 in Preston, 2.1 in St. Helens, 2.3 in Newport (Mon.), 2.6 each in Stockton-on-Tees and Gateshead, 2.7 in Plymouth, 3.1 in Newcastle-on-Tyne, 4.0 in Rotherham, 5.1 in Wigan, and 7.0 in Darlington. The deaths referred to whooping-cough, which had been 93, 76, and 93 in the three preceding weeks, further rose to 99 last week; the highest recorded rates from this cause were 1.4 in Bristol, 1.6 in Brighton, 1.7 in Tynemouth, 1.9 each in Dewsbury and Barnsley, 2.0 in Sunderland, 2.4 in Rotherham, 2.8 in Bootle, and 4.3 in Merthyr Tydfil. The fatal cases of diphtheria, which had been 77, 63, and 83 in the three preceding weeks, fell to 77 last week, and included 16 in London, 5 in Sheffield, 4 in Birmingham, and 3 each in Manchester, Bradford, and Newcastle-on-Tyne. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had declined from 86 to 62 in the four preceding weeks, rose to 73 last week, of which 21 were recorded in London, 5 each in Liverpool and Leeds, and 4 in Manchester. The deaths referred to scarlet fever, which had been 35, 34, and 23 in the three preceding weeks, rose to 31 last week, and included 6 each in London and Manchester, 4 in Birmingham, and 2 in Plymouth. The fatal cases of enteric fever, which had been 15, 11, and 12 in the three preceding weeks, were again 12 last week, of which 2 each occurred in Stoke-on-Trent, Bolton, and Newcastle-on-Tyne.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3836 in the nine preceding weeks, had further fallen to 3647 on Saturday last; 326 new cases were admitted during the week, against 321, 338, and 308 in the three preceding weeks. These hospitals also contained on Saturday last 1632 cases of diphtheria, 126 of measles, 51 of enteric fever, and 28 of whooping-cough, but not one of small-pox. The 1757 deaths from all causes in London were 160 in excess of the number in the previous week, and corresponded to an annual death-rate of 20.3 per 1000. The deaths referred to diseases of the respiratory system, which had declined from 562 to 417 in the four preceding weeks, rose to 450 in the week under notice, and were 25 above the number recorded in the corresponding week of last year.

Of the 6693 deaths from all causes, 245 resulted from different forms of violence and 519 were the subject of coroners' inquests, while 1900 occurred in public institutions. The causes of 63, or 0.9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, and in 65 other smaller towns. Of the 63 uncertified causes 15 were registered in Birmingham, 7 in Liverpool, 6 in Gateshead, 3 each in Nottingham, St. Helens, and Darlington, and 2 each in London, Southend-on-Sea, Rochdale, Halifax, Sunderland, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1196 births and 1009 deaths were registered during the week ended Saturday, Jan. 30th. The annual rate of mortality in these towns, which had been 24.5, 22.8, and 21.7 per 1000

in the three preceding weeks, rose to 22.4 per 1000 in the week under notice. During the first four weeks of the current quarter the mean annual death-rate in these towns averaged 22.9, against 18.9 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 8.8 in Motherwell, 15.2 in Clydebank, and 16.2 in Perth, to 28.4 in Coatbridge, 33.5 in Dundee, and 39.5 in Falkirk.

The 1009 deaths from all causes were 32 in excess of the number in the previous week, and included 128 which were referred to the principal epidemic diseases, against 92 and 98 in the two preceding weeks. Of these 128 deaths, 82 resulted from whooping-cough, 15 from infantile diarrhoeal diseases, 12 from scarlet fever, 10 from diphtheria, 6 from measles, and 3 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.8, against 1.4 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had increased from 28 to 58 in the five preceding weeks, further rose to 82 last week, of which 45 occurred in Glasgow, 25 in Dundee, 4 in Edinburgh, and 2 each in Aberdeen, Leith, and Motherwell. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 17, 7, and 8 in the three preceding weeks, rose to 15 last week, and included 8 in Glasgow and 2 in Dundee. The fatal cases of scarlet fever, which had been 13, 9, and 16 in the three preceding weeks, fell to 12 last week, of which 6 occurred in Glasgow and 2 in Paisley. The deaths attributed to diphtheria, which had been 21, 10, and 8 in the three preceding weeks, rose to 10 last week, and included 3 in Glasgow and 2 each in Edinburgh and Aberdeen. The deaths referred to measles, which had been 7 in each of the three preceding weeks, were 6 last week, and comprised 3 in Dundee, 2 in Greenock, and 1 in Paisley. The 3 fatal cases of enteric fever were registered in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 265, 275, and 238 in the three preceding weeks, rose to 272 in the week under notice; 30 deaths resulted from different forms of violence, against 35 and 30 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 680 births and 575 deaths were registered during the week ended Saturday, Jan. 30th. The annual rate of mortality in these towns, which had declined from 27.8 to 24.0 per 1000 in the four preceding weeks, rose to 24.7 per 1000 in the week under notice. During the first four weeks of the current quarter the mean annual death-rate in these towns averaged 24.9, against 18.9 and 22.9 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 29.8 in Dublin (against 20.3 in London and 21.6 in Glasgow), 20.4 in Belfast, 26.5 in Cork, 21.5 in Londonderry, 20.3 in Limerick, and 32.3 in Waterford, while in the 21 smaller towns the mean death-rate was 22.9 per 1000.

The 575 deaths from all causes were 18 in excess of the number in the previous week, and included 32 which were referred to the principal epidemic diseases, against 48 and 35 in the two preceding weeks. Of these 32 deaths, 11 resulted from whooping-cough, 8 from infantile diarrhoeal diseases, 4 each from measles and scarlet fever, 3 from diphtheria, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.4, against 1.4 and 2.8 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 11, 10, and 9 in the three preceding weeks, rose to 11 last week, and included 4 in Dublin, 3 in Belfast, and 2 in Dundalk. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 11, 14, and 4 in the three preceding weeks, rose to 8 last week, and comprised 5 in Dublin and 3 in Belfast. The fatal cases of measles, which had been 6, 12, and 15 in the three preceding weeks, fell to 4 last week, and comprised 2 each in Dublin and Belfast. The 4 deaths attributed to scarlet fever, of which 3 were registered in Belfast and 1 in Dublin, were equal to the average in the three preceding weeks. Of the 3 deaths referred to diphtheria, 2 were recorded in Cork and 1 in Kilkenny. The fatal cases of enteric fever occurred in Dublin and Clonmel.

The deaths referred to diseases of the respiratory system, which had been 139, 164, and 137 in the three preceding weeks, rose to 160 in the week under notice. Of the 575 deaths from all causes, 194, or 34 per cent., occurred in public institutions, and 12 resulted from different forms of violence. The causes of 19, or 3.3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.9 per cent.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

French Medical Men in the Army.

Professor Tuffier, at the annual meeting of the Société de Chirurgie, recalled the era of 1871, when the same enemy defiled the soil of France, and paid a well-merited tribute to the devotion of the French Military Medical Service. He expressed a cordial greeting to those doctors who had the perilous honour of serving at the front, and made a rapid survey of the work done and the courage displayed by the medical service since the beginning of the war. At the end of December, of the 14,000 French surgeons on military duty 6500 were still serving with the armies, while 1300 had been placed *hors de combat* (93 killed, 260 wounded, 440 missing, and 507 invalided). M. Dercle, médecin-major of the first class, who is now under treatment, sustained near Mézières 97 shrapnel wounds. Medical officers have been mentioned in orders 155 times, and there have been awarded to them 15 ribbons and 63 crosses of the Legion of Honour, also 11 military medals. Professor Tuffier related what he had seen and heard at the front concerning medical officers who, having fallen into the hands of the German medical officers, were robbed, not only of their canteens and surgical instruments, but of their cloaks and their crosses, everything, even their spurs, being taken from them. He also described how a German officer at Mercy-le-Haut robbed and tried to murder an auxiliary medical officer, an interne of the hospitals, and told how a German patrol of Pomeranian infantry murdered 40 wounded.

The Health of Paris.

The mobilisation of a large number of medical men for the armies gave rise to a dread of what might happen from a paucity of medical practitioners. This fear, however, has proved unfounded. It is true that medical men of all ages are liable to mobilisation, but there still remain at their civil posts those on the Retired List, the auxiliaries not called up, and those yet mobilisable whose class has not yet been called on and who have not applied to be attached for service, as well as a considerable number of foreign medical men. The hospitals go on as usual in all their departments, the absent medical staff being replaced by an increasing number of *confrères*. The general condition of Paris is, moreover, excellent, and this is due to several causes: there are fewer vehicles in the streets, and hence fewer floating microbes; the consumption of alcohol has markedly diminished, consequently there is less drunkenness. Notwithstanding the mass of refugees, naturally in a state of great depression and frequently accommodated most uncomfortably, the number of appeals for free assistance is not in excess of what was the case before the commencement of hostilities. Evidently the medical men of Paris cannot spare themselves, but they are not worrying over it. The drugs that have become exhausted are easily replaceable, for the German products which before the war were used in large quantities all have their French equivalents.

Medical Life in Paris.

Before the Académie de Médecine M. Sieur has urged the necessity for no delay in the disinfection of wounds, particularly shell wounds, to

prevent tetanus. Ragged wounds especially must be trimmed and cleaned. M. Dalimier reported that he had successfully treated with autovaccines prepared at the Institut Pasteur certain cases of pus-infected wounds that had proved refractory to every other treatment. M. F. Debat said that he had used Jacquet's biokinetic method in the treatment of frost-bites, and that by this means soldiers carried to his service who were incapable of walking, whose feet were cedematous and ulcerated, were completely cured in eight days. M. Jousseau proposed the use of tobacco smoke against body lice. Another method is to place the clothing infested with these parasites on an ant-hill. The ants will make short work of the parasites. M. Quénu showed that gaseous gangrene does not appear to be a clinical morbid entity, but constituted the last stage of all gangrene of wounds. It is therefore important to deal with such wounds energetically from the very onset of the gangrene, even when the general aspect is benign. Trimming the wound is the first measure. Injections of oxygenated water or of oxygen have not established their value and can be recommended only as adjuvants to trimming. This process should be practised without general anaesthesia, and should be followed by disinfection of the wound. In 12 new cases in which M. Quénu has used this method he has had no occasion to resort to amputation. M. Belbèze showed that colloidal gold finds a therapeutic indication in the surgery of war whenever serious infections are found, whether operative or not, generalised or localised, and in extended suppurating wounds. M. Lannos and M. Chavanne have shown that gun deafness may be related to lesions of cerebral origin or to psychic troubles, or that it may attack the labyrinth itself and be accompanied by fracture of the cranium or of the petrous bone, by ruptures of the tympanum, or again may present no other manifestation than a concussion of the labyrinth. M. Darier pointed out that, speaking generally, serums are indicated in acute infections with fulminant and febrile manifestations, while vaccines are more suitable in atonic, chronic, and well-localised conditions, in the treatment of ocular tuberculouses. Before the Société de Chirurgie M. Michaux related his method of treating penetrating wounds of the chest in the surgery of war. From the author's observations it is clear that hæmothorax following on penetrating wounds of the chest from gunshot and other wounds of warfare presents itself under two different aspects: the one serious, in which death ensues in a few days, the other of less grave prognosis and susceptible of cure by good drainage and postero-inferior thoracotomy. M. Sencert dealt with the treatment of penetrating wounds of the abdomen in ambulances at the front. In view of the impossibility of interfering under satisfactory circumstances and with adequately sterilised material, the author says that one should content oneself in such cases with immediate and absolute immobilisation, withholding all food. Cure will result in those cases in which a clot obliterates the bleeding vessel or in which adhesion closes a perforated coil of intestine. It is physically impossible for the surgical personnel of the ambulance, when in less than a day the necessary surgical attention has to be given to from 250 to 300 wounded, to devote the greater part of the time to doing a few laparotomies. Out of 66 wounded abdomens that M. Sencert has seen treated in this way, of which it was possible to

follow up 58 completely, 45 died and 13 were cured. M. Auvray has done since the end of August 25 trepannings for gunshot wounds of the cranium. Nine cases were of wounds relating exclusively to the cranial vault, and 16 cases in which the cranial walls, the meninges, and the brain were involved.

Jan. 30th.

Correspondence.

"Audi alteram partem."

FLOUR PRICES AND BREAD MANUFACTURE.

To the Editor of THE LANCET.

SIR,—With reference to the article in THE LANCET of Jan. 30th on the Dearer Loaf I should like to point out that, assuming a continued increase in the price of wheat, our consideration ought to be given not only to the material from which the loaf is made, but also to the actual method of its manufacture. In this connexion aeration of the dough, as distinct from raising it by yeast, is worthy of our serious attention. It is a well-known fact that in the raising of dough by fermentation a considerable loss of nutritive material takes place. This loss has been estimated by different observers at from 2'1 to 4'2 per cent., and is mostly represented by the production of alcohol which, since the finished loaf rarely contains more than 0'3 per cent. of this substance, is practically entirely wasted. Graham estimated that 300,000 gallons of alcohol were lost yearly in London in this way. With regard to the loss of bread, Liebig calculated that by using fermentation for the raising of the dough in Germany sufficient bread was lost daily to provide the then German army with their daily bread ration. If we consider a population of 40,000,000 and assume that it requires half a pound of bread per head per diem, and that the loss of material by the fermentation process of dough raising is 1 per cent., we shall find that if we use aeration for the dough raising we shall be able to make in the latter case enough bread from the same quantity of flour to feed an extra 400,000 individuals at the same rate of consumption per diem. There are many methods of aeration, all of them technically quite simple. There are no facts tending to show that aerated bread is less digestible or less nutritious than ordinary bread, and the process of aeration is applicable to all kinds of flour. To many palates aerated bread has a less appetising taste than ordinary bread, but, *inter arma silet gustus*.

I am, Sir, yours faithfully,

F. W. TUNNICLIFFE.

Harley-street, W., Feb. 2nd, 1915.

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—It is gratifying to find from Dr. N. D. Bardswell's article on the Value of Tuberculin, published in THE LANCET of Jan. 9th, that he has joined the small band of protagonists of the method.

The outstanding, and indeed the only unchallengeable, figures of his article are, of course, those referring to the bacillary findings, which are

tantamount to a statement that, no matter how rigidly controlled such figures may be, it is impossible to evade the fact that tuberculin, judged even from the immediate results of a few months' treatment, is of considerable therapeutic value—a fact which, by the way, suggests that, in the majority of cases at least, a trial of this treatment is not only justifiable but definitely indicated. The tables of general results, which admittedly do not point the same moral, are unfortunately inadmissible as scientific evidence. In the first place it is generally recognised that clinical examination alone is insufficient evidence on which to found definite statements as to arrest, and that the gross, unstandardised changes on which are based such elastic terms as "much improved," "improved," &c., are to be found in the majority of cases (tuberculin-treated or not) suddenly translated from normal to sanatorium existence; this, apart from the fact that within a few weeks of dismissal these judgments might have to be entirely altered. Moreover, Dr. Bardswell, whilst attempting to mix incompatibles—to wit, "arrests" and "much improves"—has omitted to state (1) whether in all cases the diagnosis of T.B. + was made on identical methods of examination of sputum; (2) what the average stay in the sanatorium was in each group; and (3) the average duration of specific treatment in the tuberculin groups. More important still, he does not indicate what was the method of selection of tuberculin cases, and whether the selection and treatment were carried out invariably by the same person. If, as one part of the article seems to suggest, selection was made by actual trial injections, then a percentage of early and favourable cases must have been omitted from the tables, because the sensitive reaction of many such cases is notorious; if, on the other hand, selection depended on clinical signs or temperature or general condition on admission (and this so generally poor), then a percentage of advanced or slightly febrile cases must have been omitted, cases which are recognised to improve most astonishingly during a course of tuberculin. The question of administration, either by the same individual or at least by a series of unbiassed observers using identical methods, is the more crying that many of the recent reports "on the value of tuberculin" have really merited the title of reports "on the value of tuberculin when given tentatively" or "experimentally," or "grudgingly," or "in an amateur fashion." There is one other point which deserves notice, although perhaps it is a minor one, and it is that the dangers noted after reactions—i.e., extension of disease, increased activity, pleurisy and pneumothorax—are, unfortunately, as the Registrar-General will testify, the dangers of the disease itself. At the same time, one can cordially agree with Dr. Bardswell in his appeal for a more scientific and critical spirit in the investigation of the value of tuberculin, always keeping in remembrance that critical investigation ought, in point of time, to follow scientific observation, because even in the kingdom of therapeutics the critic does not of necessity constitute the artist.

I am, Sir, yours faithfully,

EDWARD G. GLOVER.

Salterley Grange Sanatorium, Jan. 18th, 1915.

** We had Dr. Bardswell's communication some time before its appearance, and take the responsibility for its tardy publication.—ED. L.

AORTIC AND MITRAL REGURGITATION.

To the Editor of THE LANCET.

SIR,—In an annotation in your issue of Jan. 30th (p. 244) you mention the proceedings of the Société Médicale des Hôpitaux of Paris, at a recent meeting of which society cases of aortic incompetency, occurring in soldiers returned from active service, were recorded. There can be no doubt as to the diagnosis in these cases, as the French physicians are such expert auscultators. But it would be of much interest to learn whether in those cases with aortic regurgitation who had successfully borne the exertions of severe fighting there was any evidence of mitral incompetence also.

I have before this pointed out the advantages which accrue to a patient who, having aortic regurgitant disease, has in addition mitral regurgitation. Dyspnoea is less urgent, and they perform muscular feats which are quite beyond those who only have aortic incompetence. And when one considers the close proximity of one segment of the aortic valve with the lower or right flap of the mitral valve, it is difficult to know why a rheumatic poison which attacks an aortic valve does not extend its ravages to the mitral. I believe in a great number of cases this extension of endocarditis does take place, for the fibrous tissue of the two adjoining flaps is confluent. But in many cases this injury is limited to one valve only, the aortic, and in these I should have expected that dyspnoea would have been a disabling condition. I hope shortly to record some cases tending to confirm this point.

I am, Sir, yours faithfully,

Seymour-street, W., Feb. 1st, 1915. SEYMOUR TAYLOR.

FAITH AND ASTIGMATISM.

To the Editor of THE LANCET.

SIR,—Dr. S. Johnson Taylor's letter under the above heading in your issue of Jan. 30th is typical of the position taken up by those who, having no faith themselves, cannot realise there may be something in the claims of those who have faith, and he is therefore prepared to put down the results obtained by the latter to the effect of "black magic" acting on those whom he classes under the heading of that blessed word "neurotic," and considers that as a sufficient explanation. I am quite sure those of us who do believe in prescribing very low cylinders for constant wear do not consider only the refraction as being the sole cause of insomnia; at any rate, it is my habit as a result of some years' experience in general practice to make inquiries on such details as constipation, digestion, &c.

As Dr. Taylor says, "the proof of the pudding," &c., may I quote the following case? Several years ago a patient, not a "neurotic," consulted an ophthalmic surgeon of repute; he was given a prescription 0.50 D. cyl. axis vertical each eye, and told that he had very slight astigmatism, and it was doubtful if it caused his symptoms (depression, headaches), so the glasses might be worn for three months, and then if no relief was obtained they could be left off (judging from your correspondent's letter one would imagine he was speaking). Naturally, the surgeon having doubt, the symptoms did not disappear. After the lapse of some years another surgeon was consulted. He found that the astigmatism was 0.50 D. in one and 0.75 D. in the other eye. Glasses of this strength

were prescribed for constant wear, with the result the patient's headaches and fits of depression ceased.

The fact is, these cases require a great deal more care to be taken in estimating the amount of refractive error and its correction than some surgeons are able or willing to give; it is not sufficient to do a retinoscopy, place the correcting lenses thus found in the trial frame, record the effect, and then write the prescription. The objective examination is only a means to an end; the end is the result obtained subjectively, and to get this perfect entails investigation not only with the ordinary Snellen's type but with Prey's letters, and the astigmatic fan, checking the upshot with crossed cylinders, and finally, each eye having been tested separately, a trial should be made with both eyes together.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 30th, 1915. REGINALD EVERSHERD.

FROST-BITE.

To the Editor of THE LANCET.

SIR,—In the various articles on frost-bite no really specific treatment has been suggested, and I venture to call attention to a remedy which I and my colleagues, Dr. P. G. Lewis, Dr. J. H. F. Wilgress, and Dr. T. Streatfeild, have found effective at the Army Nursing Homes at Folkestone. Peroxide 5 per cent. solution with tincture of iodine 1 drachm to the pint, applied as a compress for 12 hours, followed by dry boracic wool bandages. These applications relieve the pain, and the capillary circulation is improved, the sores are healed, and the sensation in the toes soon returns. Tried side by side with other remedies, this procedure has given far and away the best results.

Many of the cases appear to be caused by constriction of the vessels, due to wet and contracted garments. This bears out the theories of Sir Alfred Keogh and Mr. A. W. Mayo-Robson. The oedema and condition generally is more like that produced by long bandaging, and those who suffer most have generally been standing a long time in wet trenches, a factor predisposing to constriction and oedema, thus rendering the tissues vulnerable to cold. This treatment is excellent for chilblains also.

I am, Sir, yours faithfully,

Folkestone, Jan. 28th, 1915. LENNOX WAINWRIGHT.

THE LATE MR. BRYANT IN THE OUT-PATIENT ROOM.

To the Editor of THE LANCET.

SIR,—The obituary notice of Mr. Bryant in THE LANCET of Jan. 9th did not mention the excellent method adopted by this remarkable surgeon in his out-patient clinique. As one whose privilege it was to attend Thomas Bryant's out-patient room over a lengthened period and to receive considerable benefit therefrom I would like to place on record the plan he adopted in order to educate the student's powers of observation and tactile sense by having a succession of cases representing various phases and modifications of each particular class of disease, in the hope it may commend itself to other teachers.

The patients were classified in the waiting-room, and those of each class were given thick hexagonal cards of a special colour. Thus breast cases had red cards, venereal ones blue, deformities white, &c. Each set was seen in succession and the points in diagnosis, prognosis, and treatment insisted

upon. Breast cases may be taken as an example. Mr. Bryant would dilate on the importance of adhesion of the skin as an early sign of cancer, and we were shown how this was to be recognised and we were encouraged to bring out the significant puckering ourselves. A second case would show early implication of the glands, while a third would be an example of benign tumour. This thoroughness in clinical teaching quickened and sustained the student's interest in a remarkable degree, as was shown by the large and regular attendance of those who were desirous of acquiring real and lasting knowledge of surgery.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 1st, 1915. CHARLES W. CHAPMAN.

THE PHARMACOPŒIAL DOSE.

To the Editor of THE LANCET.

SIR,—I am afraid your correspondent, Mr. George Foy, in your issue of Jan. 30th, has rather missed the point of my letter on the above subject. My main object was to secure clear and definite guidance from the medical profession in cases where it was found necessary to order more than the pharmacopœial dose of any active official drug. The method by which such guidance might be given was a subordinate consideration, which I felt was entirely a matter for the discretion of practitioners themselves. The practice indicated by Mr. Foy would be quite consistent with the suggestion I ventured to make.

I am, Sir, yours faithfully,

W. J. UGLOW WOOLCOCK,

Secretary, Pharmaceutical Society of Great Britain,
Bloomsbury-square, W.C., Jan. 30th, 1915.

LEECHES AND THE WAR.

To the Editor of THE LANCET.

SIR,—With regard to Professor A. E. Shipley's letter in THE LANCET of to-day's date, may I say that owing to a conversation I had in the autumn of last year with Professor Shipley, he very kindly interested himself to obtain for us a small supply (about 200) of *Limnatis granulosa*. Some of them are of an enormous size, but I am informed they are perfectly good to use, and that they will absorb from 4 to 6 drachms of blood.

We shall be pleased to supply any urgent order to brother pharmacists. The price is 18s. per dozen, and the proceeds are to be given to the Belgian Doctors' and Pharmacists' Relief Fund, so that it will be doing a good turn to our friends in distress.

I am, Sir, yours faithfully,

JOHN D. MARSHALL,

Managing Director, John Bell and Croyden,
Limited.

50, Wigmore-street, W., Jan. 30th, 1915.

BLUE PUS AS AN OMEN OF RECOVERY.

To the Editor of THE LANCET.

SIR,—The occurrence in a suppurating wound of blue pus, the product of the bacillus pyocyaneus, is a comparatively rare phenomenon, which can hardly be overlooked on account of the distinctive colouration of the dressings. During the past six months I have seen a dozen of these cases, occurring chiefly, but not invariably, among the wounded sent home from the front. The cases are usually compound septic fractures caused by shrapnel, and these when first seen discharge the "liquid mud" so commonly found in wounds infected in France and Belgium. After several

weeks of desperate illness a tinge of green is noticed on the previously mud-coloured dressings. In a couple of days the colour intensifies to a vivid bluish-green, which lasts a few days and then gradually fades, the total period of blue colouration averaging seven to ten days. Coincidentally with, or immediately following the appearance of the blue pus, the patient's condition improves, and by the time that the blue colouration has disappeared the wounds are covered with healthy granulations and convalescence is established.

This sequence has been almost invariable, so much so, indeed, that, given a patient desperately ill from acute sepsis, in whose wounds blue pus appears, I now venture to predict that the patient is on the road to recovery, and this prediction is nearly always verified. Clinically, the above phenomena suggest that the bacillus pyocyaneus has been present from the onset of the infection, but has been held in abeyance by the other pyogenic bacteria, and that as soon as the tissues begin to get the better of these bacteria the bacillus pyocyaneus is able to multiply rapidly. In none of the cases seen was there any suspicion of infection from a previous case showing blue pus; in fact, the blue pus was nearly always limited to a single patient in a ward filled with septic cases.

The above note has been written in the hope of eliciting: (1) the opinion of bacteriologists explaining why the appearance of blue pus, in intensely septic cases, is so often the harbinger of recovery; and (2) the experience of those surgeons who are treating the wounded from the front, as to whether they have found the appearance of blue pus in septic wounds to be a favourable omen.

I am, Sir, yours faithfully,

Plymouth, Jan. 27th, 1915. C. HAMILTON WHITEFORD.

LICE AND RHEUMATISM AMONGST SOLDIERS.

To the Editor of THE LANCET.

SIR,—The discomfort and pain caused by vermin and rheumatism to our soldiers are so great that every effort should be made to destroy these pests and relieve rheumatism. In the first edition of my "Pharmacology," published in 1885, I mentioned (p. 1105) five remedies for pediculi—viz., baking clothes to destroy the ova, mercury, anise, pyrethrum, and stavesacre. In the third edition, published in 1893, I added to this list chloroform, cocculus indicus, dalmatian flowers, essential oils, laurel leaves, petroleum, and quassia. The conditions of life on active service make it almost impossible to employ any parasiticide excepting in the form of an ointment. In the *Morning Post* of Jan. 14th there is a recommendation to employ mercurial ointment smeared upon one thick woollen string worn round the neck and another round the waist. This is a very simple method and seems worthy of a trial. In hospital practice the white precipitate ointment of the strength of 1 in 10 for the body and 1 in 5 for the pubis or else stavesacre ointment are more usually employed. Cantani, in his "Farmacologia Clinica," second edition, vol. ii., p. 212, recommends pyrethrum ointment as most efficacious against both forms of lice. It is made by mixing one part of pyrethrum with two of lard. Many essential oils, such as eucalyptus, seem to have a similar beneficial action to anise or pyrethrum. Anise is particularly useful in keeping away fleas, and an easy way of employing it is to carry about on one's person a small muslin bag filled with anise seeds.

In some cases, at least, of rheumatism sulphur is an exceedingly useful anti-rheumatic. Many years ago, with the conceit born of ignorance, I considered the statement that powdered sulphur worn inside the stocking is a cure for rheumatism to be only an old wives' fable. I learnt my mistake from a case which occurred in my own practice. I was seeing at fairly regular intervals for albuminuria a thoroughly skilled scientific chemist. One day he asked me to prescribe for his wife who was suffering from rheumatic pains in her hands which prevented her from sewing. This was to her a very serious matter as she added much to their joint income by embroidering altar cloths and the like. I gave him a prescription as requested, and at our next interview I asked him how his wife was. "Oh," he said, "she is quite well." I was much pleased at this, and was taking the credit for the cure to myself, when he told me that the medicine I had given her had done her no good at all, but a friend had told her to powder the inside of her stockings with sulphur and wear them all night. In a short time this completely cured her, and her husband said the sulphur must have been absorbed through the skin of her legs, passed through her body, and been excreted by the skin of her arms because her silver bangles became black. This remedy is simple, cheap, and easily applied, and might be useful in the case of our soldiers. I hardly think it could do any harm whatever, though I have no experience of the effect of sulphur continuously applied to the skin for some weeks together, but at any rate I think it is worth a trial.—I am, Sir, yours faithfully,

LAUDER BRUNTON.

New Cavendish-street, W., Feb. 3rd, 1915.

A MISUNDERSTANDING.

To the Editor of THE LANCET.

SIR,—I see a paper in THE LANCET of Jan. 30th by Dr. E. T. Jensen, and under the heading he is described as "Physician to the Special Hospital for Officers, Kensington Palace Green." This is a mistake. Dr. Jensen was one of the signatories to a letter to the press urging the need for such a hospital. But the staff of the hospital has been chosen from those who signed and from the rest of the profession. Dr. Jensen is not to blame in any way for the mistake. He was justified in thinking that the staff included all the signatories to the letter—in fact, I had in another letter alluded to the signatories as the staff. So the mistake is mine, and I regret to have placed Dr. Jensen in a false position.—I am, Sir, yours faithfully,

Eaton-square, S.W., Feb. 1st, 1915.

KNUTSFORD.

To the Editor of THE LANCET.

SIR,—Lord Knutsford has shown me his letter to you, and I quite appreciate his explanation.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 1st, 1915.

E. T. JENSEN.

THE SHORTAGE OF RESIDENT MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—May I appeal through your columns for help in carrying on the work of the East London Hospital for Sick Children, Shadwell, E. It is possible there may be doctors who if they knew of the difficulties under which hospitals are now labouring would be willing to come into voluntary residence

and help them during this temporary crisis. We have exhausted all the regular methods of obtaining resident doctors, and unless we can procure such help we shall be compelled to close a large part of the establishment, which at the present time would be a great calamity for the sick children of this neighbourhood.

I am, Sir, yours faithfully,

W. M. WILCOX,
Secretary.

Shadwell, E., Feb. 1st, 1915.

THE BELGIAN STUDENT AND THE UNIVERSITY OF CAMBRIDGE.

To the Editor of THE LANCET.

SIR,—The medical profession, generous as ever, has supplied me with enough copies of "Gray's Anatomy" to satisfy the present needs of the Belgian students at Cambridge. The publisher and editor have increased my sense of gratitude by presenting some copies of the new edition.

I am, Sir, yours faithfully,

A. E. SHIPLEY.

Christ's College Lodge, Cambridge, Feb. 3rd, 1915.

FUEL SUPPLIES IN WAR TIME.

To the Editor of THE LANCET.

SIR,—The following two paragraphs from the current press deserve to be noted by all interested in the use of fuel, whether in the domestic grate, the steam boiler, or the factory furnace:—

Threatened Coal Famine in the Midlands.—Birmingham and the Midlands generally are threatened with a coal famine. Not only are householders menaced but manufacturers cannot obtain regular supplies, and if the present scarcity continues some of them will have to close down. A variety of causes have contributed to this, the most important of which probably is the deficiency of miners owing to enlistment.

Amsterdam, Jan. 28th.—An order to economise coal has been issued by the German railway administration at Essen. It has further been officially pointed out to housewives that coke is a much cheaper form of fuel than coal and gives a better heat.

Here is a point certainly where we may well learn from the enemy. It cannot be too widely known—not only by housewives but by factory managers and other large users of fuel—that there are in many districts full stocks of coke; that it is, at the same price per ton as coal, a much cheaper form of fuel, as a much larger percentage of its weight is readily combustible material; that in kitchen ranges "broken" coke is particularly useful; and that recent experiments have demonstrated that coke can be advantageously employed for steam raising with but slight variations in the furnace arrangements. It is therefore to the advantage both of the community and of the individual at the same time that the fullest possible use should be made of our coke supplies.

I am, Sir, yours faithfully,

Feb. 2nd, 1915. A STUDENT OF FUEL ECONOMICS.

THE National Association for the Prevention of Infant Mortality and the Welfare of Infancy has arranged for an advanced course of lectures on infant care, to be delivered at the Royal Society of Medicine, 1, Wimpole-street, at 5.30 P.M. on Mondays in February, March, and April. The lectures are for voluntary health workers, mothers, and nurses; arrangements will be made for consultations at selected centres, and those successful at an examination to be held at the close of the course will receive a certificate. All particulars can be obtained from Miss Halford, 4, Tavistock-square, London, W.C.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the Central Executive Committee was held on Jan. 28th at the offices of the British Medical Association, when Sir Rickman Godlee and Mr. Meredith Townsend announced the despatch of the first box of instruments to Brussels. The box was delivered to the International Commission for Relief in Belgium at the Tunnel Wharf, Rotherhithe, and a Courier of the International Fund has taken charge of a letter to the Belgium Medical Committee in Brussels advising that Committee of the contents of the box and asking for reply as to whether similar consignments will be useful.

The question of providing clothes for the Belgian refugee doctors and pharmacists and their dependents was discussed at some length, and it was decided that attempts should be made to organise assistance in this direction. Certain steps have been taken; and those having wearing apparel in good condition are asked to communicate with Dr. Clément Philippe, 3, Hyde Park-street, London, W., where prepaid parcels may be sent. A voluntary group of sympathisers will assist in the distribution.

The payment of the fees for registration of the Belgian refugee doctors now to be admitted to the British roll of practice in this country was considered, but the Committee, speaking generally, did not consider that the Fund should pay these fees, because there seemed to be a discretionary power with the General Medical Council to reduce or remit them. A communication to this effect was made through the chairman of the Committee to the President of the General Medical Council.

PROVINCIAL ACTIVITY.

In the provinces great activity is being shown. A large meeting is being organised at Newcastle-on-Tyne by the local leaders of the medical profession; this meeting will be addressed by Professor Jacobs on Feb. 17th.

The University of Sheffield, the Sheffield Medico-Chirurgical Society, and the Sheffield Division of the British Medical Association having called a general meeting of the medical profession in Sheffield and the district to discuss the objects of the Fund, a committee was formed consisting of the following: Professor R. J. Pye-Smith, Professor R. Favell, Professor Sinclair White, Professor D. Burgess, Professor H. R. Dean, Dr. Sophia Wits, Dr. A. J. Hall, Mr. G. Wilkinson, Mr. Graham Simpson, Dr. A. G. Yates, Dr. H. Leader, Dr. A. W. Forrest, Dr. A. Forbes, Dr. R. Gordon, Mr. W. Longbottom, Dr. E. Hargreaves, Dr. C. Wiseman, Dr. J. Stokes, and Dr. R. W. Innes Smith. Dr. A. E. Naish, Westholme, 5, Clarkehouse-road, Sheffield, is acting as honorary secretary and treasurer to the Fund. A resolution was passed to instruct the committee to find out what offers of hospitality to refugees there might be from doctors in the district. Donations to the amount of £141 15s. were promised at the meeting.

From Birmingham a further list of subscriptions from both doctors and pharmacists has been received, and the Exeter Division of the British Medical Association (honorary secretary and treasurer, Mr. A. C. Roper, The Shrubbery, Exeter) makes a good first appearance. Both these local funds are still open.

In Manchester the movement will soon take force, as a strong local committee is being formed.

Dr. Archibald Donald, 2, St. Peter's-square, Manchester, is acting as honorary secretary, and a meeting of the local medical profession is projected immediately.

The Bradford Medico-Chirurgical Society has sent £25 to the Fund.

MEETING AT LIVERPOOL.

The meeting of the medical profession of Liverpool and district, held on the invitation of the President and Council of the Medical Institution to hear an address by Professor C. Jacobs, of Brussels, took place on Jan. 28th. It was most successful both in point of numbers and the enthusiasm displayed on behalf of the object for which it was convened. The title of Professor Jacobs's address printed on the circular sent to every medical practitioner in the neighbourhood was "Belgium and the Germans: the Belgian Medical Corps and the German Occupation."

The President of the Institution, Dr. E. W. Hope, occupied the chair. He introduced the subject in fitting terms, and admirably expressed the sentiments of those present who were eager to show their sympathy for Dr. Jacobs and his Belgian *confrères*. Dr. Hope alluded to the parlous condition in which the Belgian medical profession was, and pleaded that their condition could be materially alleviated by liberal subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund through the Liverpool Medical Institution.

Professor Jacobs was received with sympathetic enthusiasm, the audience rising and acclaiming him. The first part of his address, "Belgium and the Germans," was delivered in French, slowly and deliberately, so that his hearers could readily follow him. In forceful language he repudiated the statements of the German professors, written to deny the national position of Belgium, declaring that on no occasion, and at no time, did the Belgians ever evince the slightest inclination to be taken under the protection of the Germans. He referred in scathing terms to their militarism, which had consummated the destruction of so many priceless monuments of human progress and civilisation, and in considering the present position of the Belgian medical profession and the German occupation declared that many medical men personally known to him had been shot or taken as hostages, while those who had been left alive had suffered plunder, rapine, and destruction of hearth and home. Surgical instruments, drugs, motors, horses, and even ornaments in their houses and their clothes had been stolen. The patients formerly able to pay their medical advisers were no longer in a position to do so and the source of professional income was strangled. "But I appreciate with all my heart," he said, "the noble efforts of the British medical profession and that of neutral countries to stem the rising tide of misery among their professional brethren." At the close of his address Professor Jacobs showed on the screen photographs he had taken himself of the various towns, once so *riantes*, now a heap of ruins.

A vote of thanks, proposed by Sir James Barr and seconded by Dr. Frank H. Barendt, was passed amid acclamation.

The Liverpool Fund now amounts to over £375, and it is expected that at least £500 will be raised.

THE BRITISH MEDICAL ASSOCIATION AND THE FUND.

At the meeting of the Council of the British Medical Association on Jan. 27th, the action of the treasurer and chairman of Council in authorising

a contribution by the British Medical Association of 100 guineas to the Belgian Doctors' and Pharmacists' Relief Fund was very heartily approved, as was also the action of the chairman of Council in causing an invitation to be addressed to the divisions and branches of the Association to open subscription lists. Already, as will have been seen from the lists published from time to time, many divisions have opened subscription lists and made important contributions to the central fund, and the list of subscriptions published below contains record of further contributions received through the divisions.

THE WEEK'S SUBSCRIPTIONS.

Conspicuous among the donations to the Fund announced this week is one of £100 from the Victoria (Australia) Medical Benevolent Association. The subscriptions from the pharmaceutical profession are coming in steadily. A subscription from the United Hospitals' Club reminds us of the time when St. Thomas's Hospital and Guy's Hospital lived face to face in the Borough.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, amounting to £4480, and not including money received by the Scottish or Irish Funds, are as follows:—

	£ s. d.		£ s. d.
Shropshire and Mid-		Dr. R. D. Stokes ...	0 10 0
Wales Branch, B.M.A.,		Dr. Massy Alleyne ...	0 10 0
fourth donation (per		Dr. J. W. Hodgson ...	1 1 0
Dr. A. G. Mackenzie,		Dr. E. O. Kingdon ...	1 1 0
Hon. Sec.)—		Dr. R. Martyn ...	1 0 0
Dr. Lytle ...	1 1 0	Dr. J. A. Pereira ...	1 1 0
Dr. George G. Whit-		Dr. J. Mortimer ...	1 1 0
well ...	0 10 6	Mr. R. V. Solly ...	1 1 0
British Milk Products		Dr. H. Davy ...	2 2 0
Co. ...	61 5 11	Dr. H. Andrew ...	2 2 0
Mr. Pridgin Teale ...	5 0 0	Dr. J. D. Harris ...	1 1 0
Bradford Medico-Chir-		Dr. A. Ash ...	1 1 0
urgical Society (per Dr.		Dr. Mabel E. Gates ...	1 1 0
H. Johnstone Camp-		Dr. J. W. Miller ...	0 10 0
bell) ...	25 0 0	Dr. M. Cutcliffe ...	1 1 0
Colonel W. T. Martin,		Dr. C. H. Berry ...	1 1 0
M.D. ...	1 1 0	Dr. A. W. Hunt ...	0 10 0
Mr. L. A. Dunn ...	10 0 0	Dr. L. H. Tosswill ...	1 1 0
Dr. Walter K. Hunter ...	5 0 0	Dr. J. K. R. Pollock ...	1 1 0
Mr. Walter Thompson ...	5 5 0	Dr. E. Archer ...	3 3 0
Dr. Wm. Mearns ...	1 1 0	Dr. W. Ashford ...	1 1 0
United Hospitals Club		Dr. C. E. Liesching ...	1 1 0
(per Dr. J. R. Bos-		Dr. R. S. Thomas ...	1 1 0
worth, Hon. Sec.) ...	25 0 0	Dr. G. H. Hanna ...	1 0 0
Colonel Harold Hendley,		Dr. J. R. Thomas ...	1 1 0
M.D., I.M.S. ...	2 2 0	Dr. W. F. Thompson ...	2 2 0
Mr. Hugh M. Rigby ...	2 2 0	Deputy-Inspector	
Dr. I. K. Hermon ...	0 10 6	General S. W.	
Mr. A. W. F. Le Dain ...	1 1 0	Vasey, R.N. ...	1 1 0
Mr. C. P. Crouch ...	2 2 0	Dr. C. Beesly ...	1 0 0
Bury Division, B.M.A.,		Dr. G. F. Welsford ...	1 1 0
Members and Friends		Dr. C. J. Vlieland ...	1 1 0
(per Dr. P. F. Braith-		Dr. H. E. Goulden ...	1 1 0
waite, Hon. Sec.)—		Dr. G. W. Curtis ...	1 1 0
Dr. R. Crompton ...	1 1 0	Dr. G. Adkins ...	1 1 0
Dr. F. B. G. Holmes ...	1 1 0	Captain E. J. G.	
Dr. H. G. Deans ...	1 1 0	Brash, R.A.M.C. ...	1 1 0
Dr. S. Sugden ...	1 1 0	Dr. H. W. Furnivall ...	1 0 0
Drs. J. W. and A. M.		Mr. G. A. Wright ...	1 1 0
Johnson ...	1 11 6	Dr. R. Walker ...	1 0 0
Dr. J. M. Johnson ...	0 10 0	Dr. P. M. Deas ...	5 5 0
Dr. H. Lawrie ...	1 1 0	Dr. J. F. Wolfe ...	2 2 0
Dr. G. A. Jelly ...	1 1 0	Dr. W. Scott Camp-	
Dr. H. E. Strathy ...	1 1 0	bell ...	1 1 0
Dr. A. Lucas ...	1 1 0	Dr. J. H. Iles ...	1 1 0
Dr. P. F. Braith-		Dr. E. J. Pollock ...	2 2 0
waite ...	1 1 0	Dr. J. A. Bell ...	1 1 0
Girls and Staff of		Dr. C. G. E. Bennett ...	1 1 0
Kensington House,		Dr. R. Eager ...	2 2 0
Birkenhead (per		Dr. F. Ellis ...	1 1 0
the Principal, Miss		Dr. C. H. Maskew ...	1 1 0
Braithwaite) ...	5 0 0	Dr. F. A. Roper ...	1 1 0
Dr. Eardley Holland ...	2 2 0	Dr. J. A. Goard ...	1 1 0
Dr. E. Hyla Greves ...	1 1 0	Dr. D. K. Muir ...	0 10 6
Dr. Lambert Lack ...	4 4 0	Dr. Bertha Mules ...	1 1 0
Dr. P. C. W. Laws ...	1 1 0	Dr. C. H. Wise ...	0 10 6
Mr. Harold Chapple ...	2 2 0	Dr. R. L. Paterson ...	0 10 0
Mr. J. A. Thornton ...	1 1 0	Dr. C. Fenwick ...	1 1 0
Exeter Division, B.M.A.		Lieutenant-Colonel	
(per Mr. A. C. Roper) ...		Weston, R.A.M.C. ...	1 1 0
Mr. A. C. Roper ...	5 0 0	Dr. Charles Gordon	
Mr. R. A. Worthing-		Gibson ...	1 1 0
ton ...	2 2 0	Dr. A. N. Davis ...	1 1 0
Mr. B. Dyball ...	3 3 0	Dr. W. Gordon ...	5 5 0
Fleet-Surgeon H. W.		Dr. J. H. E. Jerrard ...	2 2 0
D. Walsh ...	2 2 0	Mr. J. M. Ackland ...	1 1 0
Mr. R. J. Andrews ...	0 10 0	Dr. J. H. Whaite ...	1 1 0

	£	s.	d.
Dr. J. S. S. Perkins	1	1	0
Mr. Russell Combe	1	1	0
Dr. R. Hedden	1	1	0
Northants Division, B.M.A. (per Dr. Hichens, Hon. Sec.)—			
Dr. H. Staines Baker	1	1	0
Dr. F. S. D. Hogg	1	1	0
Dr. William Skelly	1	1	0
Mr. Percy Flemming	3	3	0
Mr. Waren Tay	1	1	0
Mr. R. C. Bailey	5	5	0
Dr. F. S. Macintosh	1	1	0
Dr. T. T. Whippam	3	3	0
Mr. C. A. Ballance	3	3	0
Mr. George Morgan	1	1	0
Birmingham Local Com- mittee (per Dr. R. Saundby, Hon. Sec.)—			
Dr. and Mrs. John Frew, proceeds of Whist Party	8	0	0
Dr. Robert B. Coleman	2	2	0
Dr. J. G. Emanuel	2	2	0
Dr. W. A. Loxton	2	2	0
Dr. W. J. McCardie	2	2	0
Dr. W. Fraser Annand	1	1	0
Dr. G. F. Blake	1	1	0
Dr. Fred. H. Haynes	1	1	0
Dr. B. Seymour Jones	1	1	0
Dr. Ina S. McNeill	1	1	0
Dr. G. Hyde Melson	1	1	0
Dr. R. Arthur Newton	1	1	0
Dr. B. Lewis Paton	1	1	0
Dr. H. C. Quirke	1	1	0
Dr. N. O. Roberts	1	1	0
Dr. G. Jackson Smith	1	1	0
Pharmaceutical Society, Members of Board of Examiners for Eng- land and Wales—			
Mr. Charles T. Allen	2	2	0
Professor A. W. Crossley	2	2	0
Mr. F. W. Gamble	2	2	0
Mr. W. F. Gulliver	2	2	0
Mr. E. F. Harrison	2	2	0
Mr. H. J. Kluge	2	2	0
Mr. P. H. Marsden	2	2	0
Mr. A. R. Melhuish	2	2	0
Professor R. W. Phillips	2	2	0
Mr. W. F. J. Shep- heard	2	2	0
Mr. T. Tickle	2	2	0
Mr. Edmund White, President	2	2	0
Mr. E. T. Nethercoat, Vice-President	2	2	0
Messrs. Woolley, Sons, and Co., Limited	20	0	0
Eastbourne Pharmacists' Association (per Mr. D. Marchant)	2	2	0
Mr. Edmund White, Pre- sident Pharmaceutical Society	5	0	0
Mr. D. Gilmour	1	1	0

	£	s.	d.
Messrs. C. J. Hewlett and Son, Limited	2	2	0
Mr. W. L. Howie	1	1	0
Mr. M. T. Evans	0	10	0
Mr. N. S. Smith	0	5	0
Mr. C. Fielding	0	10	0
Mr. M. T. Foster	0	10	6
Mr. J. R. Ball (second contribution)	0	2	0
Dr. D. Charteris	0	10	0
Peterborough Pharma- cists' Committee, col- lected by, second list (per Mr. J. W. Bodger)—			
Messrs. Best and Goggs	0	10	6
Mr. W. H. Turner	0	10	6
Mr. C. H. M. Baxter	0	5	0
Mr. J. Palmer	0	5	0
Rochdale Pharmacists' Association, collected by (per Mr. J. Ker- shaw)—			
Mr. W. Bamford	2	0	0
Mr. E. Thomas	1	1	0
Mr. G. S. Dean	1	1	0
Mr. J. Kershaw	1	1	0
Mr. L. Etherington	0	10	6
Mr. R. Whitaker	0	10	6
Mr. H. Holt	0	10	6
Messrs. Mercers, Ltd.	0	10	6
Mr. S. Hall	0	10	6
Mr. J. R. Smalley	0	5	0
Mr. A. F. Corfe	5	0	0
Mr. J. R. Cave	1	1	0
Mr. H. Barrett	0	10	6
Birmingham Pharma- ceutical Association, collected by, third list (per Mr. F. Smith)—			
Mr. F. H. Prosser	2	2	0
Mr. C. Thompson	2	2	0
Mr. J. H. Cullwick	1	1	0
Mr. A. Yeates	1	1	0
Mr. A. F. Goode	1	0	0
Mr. W. E. Boyle	0	10	6
Mr. T. H. Butler	0	10	6
Mr. W. H. Richard- son	0	10	6
Mr. T. Batty	0	10	0
Mr. O. T. Edwards	0	5	0
Miss M. E. White	0	5	0
Mr. D. R. Whitley	0	5	0
Mr. Sidney S. Brown	1	1	0
Dr. J. W. Browne	1	1	0
Dr. Langdon Brown	2	2	0
Dr. C. Hubert Bond	2	0	0
Bolton Division, B.M.A. (per Dr. O'Neill, Hon. Sec.)—			
Dr. J. Young	2	2	0
Dr. R. H. Robbins	1	1	0
Canterbury and Favers- ham Division, B.M.A. (per Mr. Neil Robson, Hon. Sec.)—			
Dr. J. S. Clark	1	1	0
Sir William H. Bennett, K.C.V.O.	5	0	0
Victoria (Australia) Medical Benevolent Association (per Dr. Edward L. Gault, Hon. Sec.)	100	0	0

Obituary.

BASIL GORDON MORISON, M.D. EDIN.

Dr. Basil Gordon Morison, whose death occurred on Jan. 28th at the age of 60, was the younger son of Surgeon A. C. Morison, of the Bengal Native Infantry in the Honourable East India Company's Service. His grandfather, Sir Alexander Morison, of Bankhead, Midlothian, was also a physician of London and Edinburgh. At the University of the latter city Dr. Morison received his medical education, graduating in 1878 with first-class honours and being *proxime accessit* to both the Ettles and Beaney prizes. After graduation he became a demonstrator of anatomy to Professor (now Principal) Sir William Turner. While in this position he did his work acceptably and wrote a paper on the Arrangement of the Azygos and Superior Intercostal Veins in the Thorax,¹ in which he described a new and almost constant venous junction. He then joined his elder brother in practice in the north of London, and it was, perhaps, unfortunate that he did so, for the quality of his work, his finished literary style, and his excellent draughtsmanship fitted him for scientific work and record. But the future of the young scientist is always uncertain and—one must live. He therefore settled in London in 1879.

Thirty-six years ago the centres of medical activity in the metropolis were less accessible from the suburbs than they are now. Islington at that time had but one medical society—the Islington Medical Society—which contained some members of the highest type of private practitioner. The meetings were, however, held in the private houses of members and were thus unsuitable for the exhibition of morbid specimens. Basil Morison, imbued with scientific ardour and cherishing a high ideal of his profession as a liberal calling, together with some others founded the Æsculapian Society in 1880, which practised the whole scientific method, observed all ethical proprieties, and Morison himself hoped it might also lead to the abolition of the practice of pharmacy by the family physician. But for his anxious care of the new society it would have foundered soon after it had been launched; thanks to it, it floated into deep water and still exists with a considerable membership, meeting at the Metropolitan Hospital and doing useful work in North London. Many of its members gathered in Abney Park Cemetery on Feb. 1st to pay their last respects to their friend and laid a corporate wreath upon his grave.

All Morison's scientific work, done amid the distractions of a practice carried on with punctilious conscientiousness and involving overwork, was of a high order, as is evidenced by his paper on Infantile Diarrhoea read at the annual meeting of the British Medical Association in Liverpool in 1883; by that on Symmetrical Cysts in the Cerebrum, communicated by him and the late Dr. Charlewood Turner to the Pathological Society of London, which was beautifully illustrated by Morison himself; and by numerous communications in the transactions of the Æsculapian Society, of which he was for a long time secretary, of which he had been President, and of which he was, at the time of his death, treasurer. His ideals of professional life caused him to offer a resolute opposition to the National Insurance Act. "For the vacillation of those who

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund and crossed Lloyds Bank, Limited. These will be acknowledged by post direct, and a list will appear in THE LANCET weekly.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges with thanks the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Dr. Robert Sinclair, Dundee; Dr. R. H. Rowell, Newcastle-on-Tyne; Dr. H. Beckett-Overy, Lowndes-street, S.W.; Dr. H. M. Morgan, Lichfield; and Dr. Ethel Lampert, per Miss H. F. Gethen, Long Sutton, Winchfield.

HUNTERIAN SOCIETY.—The annual oration will be delivered by Dr. H. Russell Andrews on "William Hunter's Work on Midwifery" at 9 P.M. on Wednesday next, Feb. 10th, at the Barbers' Hall, Monkwell-street, E.C.

¹ Journal of Anatomy and Physiology, vol. xiii., p. 346.

should have been the guardians of the profession in this matter," writes one who knew Basil Morison well, "he entertained some scorn. He was the chairman of his division in opposing the panel system, and it is not too much to say that his strenuous exertions in this movement, with an underlying failure of health which he refused to acknowledge, materially hastened the crisis which resulted in his regrettable death."

While he was a man of great determination of character and with a singleness of purpose in the pursuit of right, Basil Morison was among his friends gentleness personified, and he probably had not an enemy. He was in the habit of remarking, especially during his last illness, when he at times suspected that his course was run, and expressed a little disappointment that it should be so, that, after all, it was what a man *did* that mattered, not what reward or recognition he obtained for his work. Though his material reward was not great, as so often happens in such cases, the inspiration of his example and his memory will be a force for good among his personal friends. Three months ago his heart began to fail acutely with an angina sine dolore, and he was removed to the residence of his brother, Dr. Alexander Morison, where he was under the joint care of his friends, Dr. Leonard Guthrie and Dr. George Johnston, and of his brother. Perfect rest eventuated in a promising improvement, and he contemplated spending some time with a friend in the country before trying to resume work. But accidental exposure on a boisterous day, when he was, brave to the last, rather imprudently but characteristically testing his degree of recovered power, always with a view to working again, caused a recurrence of cardiac failure, and after a week's struggle the end came. "He was," writes a personal friend, "a man of deep but unobtrusive religious feeling, attached more importance to the conclusions of St. Paul than to those of Renan and Strauss, and died as he had lived in the light of the life to come. It is well with him."

In 1887 he married Caroline, the eldest daughter of the late Colonel Herne, of the 103rd Regiment (Royal Bombay Fusiliers). She survives to mourn him with many attached friends.

The War.

MEDICAL PRISONERS OF WAR.

A FEW weeks ago we recorded the liberation and return to England of three officers of the Royal Army Medical Corps and two British Red Cross surgeons who had been taken prisoners by the Germans whilst attending wounded British and Belgian soldiers, and kept in captivity. Vivid accounts of the disgraceful treatment which several of these medical men received at the hands of the Germans appeared in the press at the time, but why the enemy should have chosen to release these particular medical men when there were so many others in exactly the same case has not yet been explained.

The Geneva Convention of July 6th, 1906, which replaced the earlier Convention of 1864, was signed on behalf of the German Government, and subsequently ratified by it. Nevertheless, the German authorities have obstinately refused to release the British medical personnel captured by them. Sir John Byers, in an interesting letter to the *Times* recently, gave cogent reasons why an interchange of medical prisoners of war ought to be arranged

without delay. But it must not be forgotten that no reasons are really needed for the prompt return to their own side of medical prisoners, since by international law medical men engaged in professional duties are immune from capture. Article 9 of the Geneva Convention of 1906 runs as follows:—

The personnel engaged exclusively in the collection, transport, and treatment of the wounded and the sick, as well as in the administration of medical units and establishments, and the chaplains attached to armies, shall be respected and protected in all circumstances. If they fall into the hands of the enemy they shall not be treated as prisoners of war.

Article 10 covers the case of British Red Cross surgeons, and begins as follows:—

The personnel of Voluntary Aid Societies duly recognised and authorised by their Government who may be employed in the medical units and establishments of armies is placed on the same footing as the personnel referred to in the preceding article, provided always that the first-mentioned personnel shall be subject to military law and regulations.

Article 12 provides for the return to their own side as soon as possible of recognised medical officers who have fallen into the hands of the enemy:—

The persons designated after they have fallen into the hands of the enemy shall continue to carry on their duties under his direction, and when their assistance is no longer indispensable they shall be sent back to their army or to their country at such time and by such route as may be compatible with military exigencies. They shall then take with them such effects, instruments, arms, and horses as are their private property.

Lastly, Article 13 should be quoted, for its terms seem, in many cases if not in all, to have been violated by the German authorities:—

The enemy shall secure to the persons mentioned in Article 9 while in his hands the same allowances and the same pay as are granted to the persons holding the same rank in his own army.

The extracts which we have given make it quite clear that the enemy to suit his own purposes has deliberately ignored the Convention to which he was a party. The question of exchanging military and Red Cross officers falling into the enemy's hands does not arise. The only ground for this repudiation of its duty which Germany could conceivably bring forward is Article 24:—

The provisions of the present Convention are only binding upon the contracting powers in the case of war between two or more of them. These provisions shall cease to be binding from the moment that one of the belligerent powers is not a party to the Convention.

With so many nations engaged in this world war, it may, for aught we know, be possible by some quibble to contend that some one or other of the States now at war omitted to sign or to ratify the 1906 Geneva Convention in the precise form laid down, and that Germany is thereby absolved from carrying out any duties which happen to be distasteful or inconvenient.

THE CASUALTY LIST.

For some weeks past the casualty lists have been lighter, and we have had to record no names of medical officers in the navy or army as killed, wounded, missing, or captured. H.M.S. *Viknor*, however, contained Surgeon Vernon Lickfold Matthews, R.N., among her officers, and it is assumed by the Admiralty that he lost his life with her. Lieutenant J. R. Waddy, R.A.M.C., was reported wounded on Jan. 31st.

TORPEDOING A HOSPITAL SHIP.

No doubt the German Admiralty will find some hair which can be split to excuse the murderous attack by a submarine upon the British hospital ship *Asturias* 15 miles off the Havre lightship on Tuesday last. But the fact remains that in defiance of humanity and the plain letter of international law a German torpedo was fired at a Red Cross vessel at 5 o'clock on a February afternoon, when it was too light for the attack to be made by error. Fortunately the attempt failed, but it will not be forgotten.

THE WAR AND THE SHORTAGE OF DOCTORS.—At the recent meeting of the Executive Committee of the General Medical Council, Sir Donald MacAlister gave some figures comparing the number of medical students now in attendance with the number at the beginning of the October session, 1913. The figures showed a reduction in the first year students of 49, second year 220, third year 256, fourth year 202, fifth year and higher 312. From these figures it is clear that for the next few years from 200 to 300 fewer medical men will qualify. This information has been communicated to the War Office, with a view to releasing for the completion of their curriculum the senior medical students enrolled in the Royal Army Medical Corps or serving with the Red Cross.

WOUNDED ALLIES RELIEF COMMITTEE.—This committee was established on the outbreak of war to coöperate with the Admiralty, the War Office, and the Red Cross Societies for the relief of wounded allies. Working in close coöperation with the British and Belgian Governments, it has arranged for 1800 wounded Belgians in hospitals in various parts of England and Scotland, and there are now about 60,000 of these men registered at the committee's bureau, of whom about 20,000 are in this country. The register is officially recognised by the Registrar General as the source of information concerning Belgian soldiers. The committee has arranged, and is now arranging, accommodation for convalescents on leaving hospital. It has become clear that the Wounded Allies Relief Committee is faced with a great undertaking and a great responsibility, which it is anxious to discharge.

The hospitals organised by Dr. Haden Guest at the Hotel Majestic in Paris, at Limoges, and at Nevers are doing valuable work in cordial relationship with the French authorities. The funds provided for general Red Cross purposes are only to a very small extent available for other than British wounded, and Belgian resources are, by the unhappy situation of that country, exhausted. In order to meet these great needs, which are bound to increase, the Wounded Allies Relief Committee appeals for a sum of £100,000, to be spent in the immediate work of the relief of the sick and wounded of our gallant allies. Remittances should be sent to the honorary treasurer, 217, Strand, W.C.

THE BELGIAN SOLDIERS' FUND.—This fund is appealing for regular weekly support in order to provide the Belgian soldiers at the front with a constant supply of food, comforts and warm clothing. The need of these men is very great; for their own people, most of whom are either in the hands of the Germans or refugees in foreign lands, are unable to send them the parcels from home that have meant much to the British Expeditionary Force. Food is soon used up, and clothing soon becomes unwearable from the conditions in the trenches. Therefore the Belgian Soldiers' Fund is appealing for weekly gifts of groceries, such as 1 lb. packets of coffee, biscuits, cocoa, lump sugar, rice, chocolate, macaroni, split peas, or one tin of meat, milk, jam, meat extract, &c., or one warm garment a week. The fund is also sending comforts of food and clothing to the Belgian military hospitals. Contributions in money or in kind and donations towards field kitchen comforts for providing hot meals to the men in the trenches will be gratefully received by the Secretary, the Belgian Soldiers' Fund, 19, James-street, Oxford-street, London, W.

DUBLIN CASTLE HOSPITAL.—This hospital, which is now ready for the reception of wounded soldiers, was thrown open during one afternoon last week for inspection by the public. The original intention was to

provide accommodation for 500 soldiers, but at the suggestion of the War Office the actual number of beds has been reduced to 250. There is little doubt that a much larger number can be put up should occasion require. The several rooms of the State apartments have been fitted up as wards for soldiers, notably the large rooms known as the Throne Room, the Gallery, and the Supper Room. They are lofty, bright, and cheerful rooms, well heated, though they have the defect of a northern aspect. There are no beds in St. Patrick's Hall, which is to be fitted as a recreation room. A number of smaller rooms, including those occupied by the King and Queen on their last visit to Ireland, have been specially fitted for officers. These rooms contain three or four beds each, and have a pleasant southern aspect. The theatre is a large circular room, which is fairly suitable for its purpose. Those in charge of the undertaking have made their arrangements with great expedition, and the hospital should be thoroughly efficient.

VACANCIES FOR MEDICAL OFFICERS.—Captain A. Mowat, commanding the Highland Mounted Brigade Field Ambulance, Royal Army Medical Corps, writes from the Drill Hall, Rose-street, Inverness, as follows: "Medical officers are urgently required for service with the above unit. There is also a vacancy for a medical officer for the 4th (Reserve) Cameron Highlanders. I shall be glad to give full information regarding pay and duties to anyone who applies to me at the above address."

In *Le Matin* of Jan. 17th appeared the following notice in reference to Mr. Bruce Burnside, who is now acting as surgeon in one of the French Red Cross hospitals: "The President of the French Republic has granted a silver medal of the second class for the saving of life to Dr. Bruce Burnside, a British subject, who distinguished himself by his courage and his devotion in saving, under particularly perilous circumstances, a child who had fallen into the river Gner, at Lannion, on the 29th of October, 1914."

JAPANESE RED CROSS SOCIETY.—On Jan. 29th Queen Alexandra received at Marlborough House the members of this society who have arrived in England for service and are now at Netley. The unit, which was presented to Her Majesty by the Earl of Onslow, included Dr. Jiro Suzuki, late Surgeon-General of the Imperial Japanese Navy, and Dr. Tsuneyshi Ashima. The personnel consists of 2 surgeons, 2 chief nurses, 20 nurses, a secretary, and an interpreter. They arrived at Liverpool on Jan. 22nd, when they were welcomed by Lord Onslow and Surgeon-General Sir B. Franklin on behalf of the British Red Cross Society, and by Mr. H. Bonar on behalf of the War Office. On Jan. 27th Lord Emmott, on behalf of the Government, entertained the four leading members of the party to dinner at the Carlton Hotel, Mr. F. Dyke Acland, Under Secretary for Foreign Affairs, presiding. Similar Japanese Red Cross ambulances have been despatched to France and Russia.

WAR GIFT FROM THE IMPERIAL COLLEGE.—On Feb. 2nd Surgeon-General Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Department, was presented with a portable X ray apparatus of the War Office pattern by the staff and students of the Imperial College of Science and Technology. At the outbreak of war Sir Alfred Keogh, who is Rector of the College, was given leave by the governing body to act as Red Cross Commissioner in France, and he was subsequently called back to his former post at the War Office by Lord Kitchener. The X ray apparatus will be handed over to the No. 15 General Hospital for use at the front. Mr. A. H. D. Acland, chairman of the governors of the College, presided over a large gathering, and the presentation was made by Professor J. B. Farmer on behalf of the staff and Mr. R. L. Carr on behalf of the students.

Lieutenant-Colonel M. J. Whitty, R.A.M.C., who has held the post of senior medical officer of the Liverpool recruiting area for the past eight years, has been appointed medical officer of recruits in the Western Command.

It is announced that Sir Thomas Lipton's yacht *Erin*, with a British Red Cross party for the Balkans on board, have arrived safely at Brindisi.

Medical News.

UNIVERSITY OF CAMBRIDGE.—It is proposed by the council of the Senate to offer the following grace for approval by the Senate: "That on the recommendation of the State Medicine Syndicate the examination for the diploma in Psychological Medicine be not held in the present academical year."—The following medical degrees have been conferred:—

M.B. and B.C.—C. L. Gimblett, Caius.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A pathological meeting will be held to-day, Friday, Feb. 5th, in the society's rooms, West London Hospital. Specimens will be shown at 8 P.M. and the chair will be taken at 9 o'clock.

On Thursday evening, Jan. 28th, Mr. W. G. Martin, on his retirement from the post of head printer of THE LANCET after nearly 40 years of service, was entertained to dinner by past and present members of the staff, when a presentation was made to him by the Editor on behalf of some who have worked with him.

The Council of the University of Sheffield have appointed Mr. Arthur J. Hall, M.A., M.D. Cantab., F.R.C.P. Lond., to the post of Lecturer in Medicine.

THE PROFESSIONAL CLASSES WAR RELIEF COUNCIL.—The Lord Mayor of London has issued invitations to a public meeting to be held at the Egyptian Hall of the Mansion House on Tuesday, Feb. 16th, at 4 P.M., to consider how distress among the professional classes, attributable to the war, can best be prevented or relieved. The Archbishop of Canterbury and Sir Edward Clarke will address the meeting, and further information can be received from the honorary secretaries of the Council, 13, Prince's-gate, London, S.W.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

CROCKER, J. H., Medical Officer of Health of Richmond, Surrey, Captain. R.A.M.C. (Ter. S.S.), has been appointed Honorary Physician and Registrar to the Red Cross Hospital, Richmond, overflow to the 2nd London (City of London) General Hospital, Chelsea.
GUTHRIE, DOUGLAS, M.D., F.R.C.S. Edin., has been appointed Temporary Surgeon to the Edinburgh Ear and Throat Infirmary.
LEASK, HENRY L. G., M.D. Glasg., F.R.F.P.S. Glasg., has been appointed Surgeon to the Glasgow Eye Infirmary.
MCALLISTER, A. C., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Registrar to King's College Hospital, S.E.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board, washing, and lodging.
BENEDEN, KENT, NATIONAL SANATORIUM.—Medical Superintendent. Salary £350 per annum, with house.
BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry.
BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £260 per annum, with apartments, board, laundry, &c.
BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.—House Surgeons, Senior and Junior. Salaries £150 and £130 per annum, with board, residence, and laundry.
BOURNEMOUTH, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Resident Medical Officer. Salary £300 per annum, with board, residence, and laundry.
BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
BRADFORD CITY.—Two positions on Staff of Medical Officer of Health in connexion with scheme of Child Welfare. Salary £350 per annum.
BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with apartments, board, attendance, laundry, &c.
BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with apartments, board, and laundry. Also Junior House Surgeon and Assistant House Surgeon with charge of beds. Salaries £80 per annum, with apartments, board, and laundry.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BRISTOL GENERAL HOSPITAL.—Senior House Surgeon. Salary at rate of £200 per annum, with board, residence, &c.
BRISTOL ROYAL INFIRMARY.—Throat, Nose, and Ear House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £100 per annum.
CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.
CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing. Also Resident Medical Officer. Salary £200 per annum, with board, &c.
COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEBLE-MINDED.—Female Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.
COVENTRY, COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.
DERBYSHIRE COUNTY COUNCIL.—Tuberculosis Dispensary Officers. Salary £400 per annum.
DOMESTIC SERVANTS' INSURANCE SOCIETY.—Medical Referee and Adviser one hour per day. Salary 150 guineas per annum.
DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Female Resident House Surgeon.
EAST LONDON HOSPITAL FOR CHILDREN, Shadwell.—Resident Medical Officer, House Physician, and House Surgeon.
ECCLES AND PATRICKROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.
EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Senior House Surgeon for 12 months. Also House Physician and Assistant House Surgeon for six months. Salary at rate of £250 per annum for senior post and £150 for junior posts, with board, apartments, and washing.
GLOUCESTER COUNTY ASYLUM, Barnwood, near Gloucester.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, laundry, and attendance.
HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Junior Assistant Medical Officer. Salary £250 per annum, with rations, apartments, and attendance.
HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
HAMMERSMITH INFIRMARY, Ducane-road, Wormwood Scrubs, W.—Second Assistant Medical Officer. Salary £130 per annum, with board, lodging, washing, and attendance.
HOSPITAL FOR DISEASES OF THE SKIN, Stamford-street, Blackfriars, S.E.—Clinical Assistant.
HUDDERSFIELD, COUNTY BOROUGH.—Medical Inspector of School Children. Salary £300 per annum.
HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female House Surgeon and Female Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Or Male Resident House Surgeon. Salary £60 per annum, with board and laundry.
KENSINGTON TUBERCULOSIS DISPENSARY, 119, Ladbroke-grove, W.—Temporary Medical Officer. Salary at rate of £500 per annum.
LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for six months. Salary at rate of £50 per annum.
LEEDS UNIVERSITY.—Demonstrator of Bacteriology. Salary £250 per annum.
LEICESTER EDUCATION COMMITTEE.—Temporary Assistant Medical Officer. Salary £300 per annum.
LIVERPOOL, COUNTY ASYLUM, Rainhill.—Locum Tenens Assistant Medical Officer.
LIVERPOOL INFIRMARY FOR CHILDREN.—Two Resident House Physicians for six months. Salary £30 each, with board and lodging.
LONDON HOMOEOPATHIC HOSPITAL, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Surgeon for Diseases of the Eye.
LONDON LOCK HOSPITAL, Dean-street, Soho, W.—House Surgeon for six months. Salary at rate of £100 per annum. Also Honorary Anaesthetist once a week.
MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Visiting Surgeon. Salary £100 per annum.
MANCHESTER CORPORATION.—Two Assistant Tuberculosis Medical Officers. Salary £350 each per annum.
MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
MANCHESTER EDUCATION COMMITTEE.—Two Assistant School Medical Officers. Salary £300 per annum.
MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.
MANCHESTER, MONSIEUR FEVER HOSPITAL.—Second and Third Medical Assistants. Salary £175 and £150 per annum respectively, with board, lodgings, and washing.
MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Resident Surgical Officer at High-street Hospital. Salary £90 per annum, with board and residence. Also House Surgeon for three or six months. Salary at rate of £70 per annum, with board and residence. Also House Surgeon at Whitworth-street West Hospital for three or six months. Salary at rate of £70 per annum, with board and residence.
MIDDLEBROUGH COUNTY BOROUGH.—Temporary Chief Tuberculosis Medical Officer. Salary £500 per annum.
MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £25 per annum, with board, residence, and laundry.

Notes, Short Comments, and Answers to Correspondents.

THE ARMY MEDICAL SERVICE: LOOKING BACKWARD.

A CORRESPONDENT writes: The first definite information of medical men in the battlefield occurs in the reign of Henry V., when Nicholas Colnet, as physician, and Thomas Morestede, as surgeon, accompanied the King in his expedition into France. The pay of each of these officers was 1s. a day and a bodyguard of three archers. As a security for this payment Colnet and Morestede were allowed to take with them certain valuable jewels belonging to the King. Morestede took with him 12 assistants, who each received 6d. a day. He was also supplied by the King before starting with a sum of money to provide a suitable equipment. Further, he was provided with a "chariot, two waggons, and two sumpter horses." Morestede was present at the battle of Agincourt, where he and his assistants must have found abundant scope for their energies, for the casualties were enormous. The casualties on the English side are not known, but the mortality among the French is said to have exceeded 11,000. Morestede's medical colleague must also have had his hands full, for the English troops suffered badly from dysentery. The war over, Morestede returned to London and took an active part in the Surgeons' Guild. He became wealthy and added an aisle to St. Olave's Church, Jewry, where he was buried.

THE DEARER LOAF.

To the Editor of THE LANCET.

SIR,—As you so truly say in the leading article in your issue of Jan. 30th that nourishing bread is of the utmost importance to "the extreme poor, often limited, sadly enough, to bread with butter or jam," I venture to direct attention to the advantages of wholemeal ground to a uniform fineness, so that the digestive juices can surround the particles and extract their nutriment. The Bread and Food Reform League has emphasised the importance of this subject for over 30 years, and has also advocated that, when finely ground wholemeal and wheatmeal (a grade from which a little of the coarse bran has been removed) cannot be assimilated, it is advisable to encourage the use of household flour containing the maximum nutriment of the wheat grain that can be obtained with a smaller amount of indigestible woody fibre. The league especially advises the retention of the "germ" and the strong gluten, found in flours commercially designated "patents," which are now abstracted and used for expensive breads.

Recent scientific investigations prove that serious disease is produced by minute alterations in foodstuffs, and that the vitamins found in wholemeal, wheatmeal, and old-fashioned household flour, but removed from fine white flour, are most important elements of nutrition when bread forms the principal food. As practical experience shows the beneficial results secured by the use of these breads when genuine I venture to hope that your readers will most kindly encourage their adoption and thus help to promote the healthy nutrition of the people.

I am, Sir, yours faithfully,

MAY YATES,
Honorary Secretary, Bread and Food
Reform League.

5, Clement's Inn, London, W.C., Feb. 1st, 1915.

THE CENTRAL COMMITTEE FOR NATIONAL PATRIOTIC ORGANISATIONS.

THE task laid out for itself by this committee seems in every way worthy of vigorous support. It is that of stimulating and instructing public opinion throughout the country in respect of the causes and objects of the war, of arousing the nation to a sense of its danger, and keeping it alive, for the great driving power of public opinion, upon which ultimately the end of the war will depend, must not be left to shift with the temporary dominance of various temperaments or the changing fortunes of war. Any weakening or wavering or a patched-up truce would only expose our children under far more disadvantageous circumstances to the rule and methods of a ruthless militarism that is a standing menace to civilisation, democracy, and liberty throughout the world. Another portion of the committee's work consists in translating into the languages of the respective neutral countries the full evidence on which the Allied case rests and taking measures for its circulation therein. The president of the committee is Mr. Asquith, and the

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORTHAMPTON COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £250 per annum, with board, &c.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry. Also Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

OLDHAM ROYAL INFIRMARY.—Second House Surgeon. Salary at rate of £120 per annum, with board, residence, and laundry.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Surgeon. Salary at rate of £80 per annum, with board, residence, and washing.

PAISLEY BURGH INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, washing, and attendance.

PLYMOUTH INCORPORATION OF GUARDIANS WORKHOUSE AND INFIRMARY.—Resident Assistant Medical Officer. Salary £250 per annum, with apartments, rations, and washing.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Surgeon.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Second Resident Medical Officer. Salary at rate of £100 per annum, with board and washing. Also Temporary Honorary Assistant Physician to Out-patients.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD COUNTY BOROUGH.—Assistant Tuberculosis Officer. Salary £350 per annum.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD CHILDREN'S HOSPITAL.—House Surgeon. Salary £150 per annum, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Female Assistant House Surgeon and Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.

SIXTH (RESERVE) BATTALION, THE BLACK WATCH (ROYAL HIGHLANDERS).—Medical Officer.

SOUTHAMPTON ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTON DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOKE-ON-TRENT EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

SWANSEA UNION INSTITUTION.—Resident Assistant Medical Officer. Salary £295 per annum.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

WAKEFIELD, CLAYTON HOSPITAL.—Senior House Surgeon. Salary £160 per annum, with board, lodging, and laundry.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anaesthetist. Salary £110 per annum, board, residence, and laundry.

WALTHAMSTOW URBAN DISTRICT COUNCIL HOSPITAL FOR INFECTIOUS DISEASE, Chingford.—Resident Medical Officer. Salary £250 per annum, with rooms and board.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WHITECHAPEL UNION INFIRMARY, Vallance-road, E.—Second Assistant Resident Medical Officer. Salary £200 per annum, with rations, apartments, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WINDSOR, FIFTH RESERVE BATTALION THE QUEEN'S REGIMENT.—Medical Officer.

Births, Marriages, and Deaths.

BIRTHS.

CORBETT.—On Jan. 27th, at Blackwell, near Bristol, the wife of Captain D. M. Corbett, R.A.M.C., of a daughter.

HAY.—On Jan. 23th, at 20, St. James's-place, S.W., the wife of Kenneth R. Hay, M.B., of a son.

DEATHS.

DOUGHTY.—On Jan. 23th, at Woodchurch, Kent, William Cape Doughty, L.R.C.P. & S., after a short illness, aged 31 years.

MORISON.—On Jan. 28th, at the residence of his brother, 14, Upper Berkeley-street, W., Basil Gordon Morison, M.D., aged 60 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

vice-presidents are Lord Rosebery and Mr. A. J. Balfour. Contributions or offers of other assistance should be made to the secretary, the Central Committee, Canadian Pacific Building, 62, Charing Cross, W.C., from whom also further information can be obtained.

POPULAR MEDICINE IN GERMANY.

To the Editor of THE LANCET.

SIR,—In reference to your remarks on Father Kneipp's book, published under this heading last week, I may call the attention of your readers to Rehm's "Allerlei," published in Ulm in 1806. Rehm was a Prussian and Polizeidirektor, and his book therefore is marked by a Protestant rationality, in strange contrast to the Rev. Father's romantic note. It is interesting to compare his work, however, with such books as the Scottish "Tippermalluch's Receipts" and the English "One Thousand Notable Things," which were popular domestic medicine books of the latter end of the eighteenth century. Rehm, it must be confessed, contains very little quaint folklore as do Tippermalluch and the English chap-book. There is nothing in his pages to remind one of the medicinal stones mentioned in the Scandinavian mythology. Nor do cannibalism and charms here appear. But the pharmacopœia of Rehm is evidently traditional. Against the tape-worm he proceeds as he might against a dragon. An immense tripartite dose is given to the patient. It comes traditionally from Leibnitz Vogler, "of blessed memory." The worm is expelled *seriatim* at intervals of an hour or so, and the first dose is composed of quicksilver and pounded shells. A paste made of the yolk of an egg mixed with pounded sal ammoniac is recommended as a remedy for cataract. Oil of spurry (*spargula*) is stated to be a sovran remedy for hæmorrhage of the lungs, and it is noted that cattle feed and grow fat upon it, while it increases the wool-bearing capacities of sheep. Certain harmless directions are given for the treatment of epilepsy, and it is noted that the disease is popularly supposed to reside in the thumbs, whence the vulgar are always anxious to keep the patient's thumbs from being bent in upon the palms of his hands. A barbaric way of keeping fish fresh in winter is to pack them in snow, which benumbs but does not kill them—at least, this is Rehm's experience. Curious side-lights such as this are thrown on the life of the times. For instance, a story is told of the shooting of a mad dog, the fat of which was at once sold to a druggist for some reason or other. The deaths of dogs and even human beings are often attributed to the bite of flies that have escaped from fly-papers. Frost-bite is frequently mentioned, and it is cured by medication rather than by the application of snow. The juice of potatoes is used as a substitute for soap, and bread made of the same tuber is described and lauded as an article of diet.

Reading this book, we feel that we are in a primitive kindly world of peasants, scarcely in a savage one, still less in one that would adumbrate the latter-day Prussian.

I am, Sir, yours faithfully,

Feb. 2nd, 1915.

BOOKWORM.

A SWEDISH REMEDY FOR FROST-BITE.

WE have received from Mr. Edward Edwin, of 39, Beauchamp-road, Lavender Hill, London, S.W., samples of an ointment called "Vetterin," which he states has been used for years with the greatest success in Sweden for the treatment of frost-bite. Mr. Edwin quotes a number of letters from Swedish medical men which speak so confidently about the merits of this preparation as to make it well worthy a trial elsewhere than in Sweden.

THE LESION IN TETANUS.

To the Editor of THE LANCET.

SIR,—I have read in THE LANCET of Jan. 2nd, p. 17, a report of the successful treatment of tetanus in a case having the remarkably short incubative period of two days. There is nothing in the report showing at all conclusively that the condition arose from abrasion of the hip, protected as it must have been by clothing; and as the percentage of recovery in tetanus is increased as the incubation period is lengthened—recovery in five-day incubation cases being rare even under massive doses of antitetanic serum—is it not well to assume the existence of some trivial lesion, oral, intestinal, &c., acting as a nidus for the infection, rather than accept a recent, absolutely superficial injury as the field of ultra virulent infection?

I am, Sir, yours faithfully,

THOS. B. ROGERS, D.V.S.

Woodbury, N.J., Jan. 17th, 1915.

Cheval.—The very small average of six miles a day would not appear to justify, financially speaking, the keeping of a car, unless our correspondent has a place attached to his house where he can keep it, and has the intention of extending the sphere of his operations. If he

will tell us the cost of his present system of hiring a brougham, whether he would drive a car himself, and where he would keep it, we shall be better able to advise him. He could probably get a booklet on the subject of the running cost from Messrs. De Dion Bouton, 10, Great Marlborough-street, London, W.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Dr. D. H. Scott: *Lepidostrobos* Kentuckyensis, formerly *Lepidostrobos* Fischeri. Scott and Jeffrey—A Correction.—Mr. T. Lewis and Mr. M. A. Rothschild: The Excitatory Process in the Dog's Heart. Part II., The Ventricles (communicated by Prof. E. H. Starling).—Mr. A. J. Walton: On the Variation in the Growth of Mammalian Tissue in Vitro according to the Age of the Animal (communicated by Prof. W. Bulloch).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries—Thomas H. Kellock, David Forsyth): at 8 p.m.

Cases:

Mr. H. Morriston Davies: (1) Bronchiectasis treated by Ligation of the Branch of the Pulmonary Artery; (2) Mediastinal Teratoma—Result of Operations on; (3) Osteitis Fibrosa Cystica of the Femur.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 p.m., Discussion on Gunshot Wounds of the Head (introduced by Sir Victor Horsley). Followed by Sir David Ferrier, Mr. R. Warren, Mr. W. H. Jessop, Mr. L. B. Rawling, and others.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, Lecture Theatre of the Society, 17, Bloomsbury-square, W.C.

TUESDAY.—8 p.m., Communications from the Society's Research Laboratories:—Prof. H. L. Smith: Acetylsalicylic Acid.—Prof. H. G. Greenish and Mr. A. E. Beesley: Discolouration of Sodium Salicylate in Solution by Alkalines.

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—9 p.m., Annual Oration:—Dr. H. R. Andrews: William Hunter's Work on Midwifery.

SOUTH-WEST LONDON MEDICAL SOCIETY, Bolingbroke Hospital, Wandsworth Common, S.W.

WEDNESDAY.—9 p.m., Dr. A. F. Hertz: Flatulence.

CHILD STUDY SOCIETY LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—6 p.m., Lecture:—Dr. C. W. Kimmins: With the British Association in Australia.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 a.m., Dr. Simson: Diseases of Women. 10.30 a.m., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 a.m., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 a.m., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 a.m., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 a.m., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 a.m., Dr. Simson: Gynaecological Operations. 10.30 a.m., Surgical Registrar: Demonstration of Cases in Wards. 12.15 p.m., Lecture:—Dr. Bernstein: Applied Pathology. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 a.m., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 p.m., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 a.m., Surgical Out-patient (Mr. E. Gillespie). 2.30 p.m., Medical Out-patient (Dr. T. R. Whipham); Gynaecological (Dr. J. B. Banister). 3 p.m., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Rays and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whiphram); Skin (Dr. G. N. Meachen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynaecological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe); 4.30 P.M., Clinical Demonstration:—Dr. R. M. Leslie: Selected Medical Cases.

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.
MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY.—4 P.M., Dr. J. L. Bunch: Some Common Skin Diseases.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Fungus Diseases of Skin and Hair.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture III.)
THURSDAY.—3 P.M., Dr. P. C. Mitchell: Zoological Studies: War and Evolution—Nations as Species. (Lecture I.)
FRIDAY.—9 P.M., Dr. W. S. Bruce: Recent Advances in Oceanography.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.
TUESDAY.—7.30 P.M., Discussion on Tall versus Short Men for the Army (opened by Dr. M. S. Pembrey).

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.
THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. A. Renshaw: Vaccine Treatment of Respiratory Diseases.
For further particulars of the above Lectures, &c., see Advertisement Pages.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 3rd, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maxim. Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 23	29.63	N.E.	...	43	38	34	32	35	Overcast
" 29	29.72	N.E.	...	53	40	35	32	35	Overcast
" 30	29.94	S.W.	...	44	40	35	36	38	Overcast
" 31	29.54	W.	...	52	44	38	39	41	Cloudy
Feb. 1	29.93	W.	0.14	59	49	38	37	39	Cloudy
" 2	29.31	S.W.	0.20	53	51	39	48	49	Raining
" 3	29.89	S.W.	...	58	50	41	43	45	Cloudy

The following magazines, journals, &c., have been received:—
 Interstate Medical Journal, American Journal of Tropical Diseases and Preventive Medicine, Medical Review of Reviews, Indian Medical Journal, British Review, Homeopathic Recorder, Practitioner, Journal of State Medicine, Journal of Pathology and Bacteriology, Bulletin of the Johns Hopkins Hospital, Dominion Medical Monthly, Journal of the Royal Sanitary Institute, British Journal of Dental Science, &c.

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Remarks

PUERPERAL ECLAMPSIA.

Being the Introduction to a Discussion at the Midland Medical Society on Jan. 27th, 1915.

By C. E. PURSLOW, M.D. LOND.,
M.R.C.P. LOND.,

HONORARY OBSTETRIC OFFICER, QUEEN'S HOSPITAL, BIRMINGHAM;
LECTURER ON MIDWIFERY AND DISEASES OF WOMEN, UNIVERSITY OF BIRMINGHAM; CONSULTING SURGEON,
BIRMINGHAM MATERNITY HOSPITAL AND
LYING-IN CHARITY.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—For the purposes of this discussion I will divide the subject into the following sections: I., Prophylactic Treatment; II., Treatment of the Fits and of the Toxæmia; III., Obstetrical Treatment.

I.—PROPHYLACTIC TREATMENT.

As regards prophylactic treatment there can be no doubt that in many cases in which the disease is threatened it can be warded off by appropriate means, and success depends on an early recognition of symptoms of the pre-eclamptic state; these are numerous, but I should say that the most constant and important are: albuminuria, persistent headache, and oedema. Other symptoms may be disturbances of vision and hearing and vomiting. One prodromal symptom which is not common, but which when it occurs is, in my opinion, of most unfavourable prognostic import, is severe epigastric pain. The albuminuria associated with eclampsia, in which there is usually a large amount of albumin present, is practically confined to the later half of pregnancy, cases of eclampsia before then being rare. Pronounced albuminuria in the later months is a dangerous complication for both mother and child, and the danger of the condition is greatly increased by the fact that it is so often unrecognised and untreated until the sudden onset of a convulsion calls attention to the case.

It should be made a rule to examine the urine of every pregnant woman in the latter half of pregnancy, and the examination should be repeated at intervals, shorter as full term approaches; if this rule were adhered to the death-rate from eclampsia would be greatly reduced. It should always be borne in mind that a haze of albumin may be due to mixture with vaginal discharge, so that if albumin is present in the specimen passed by a patient we should never base a diagnosis or treatment on that, but should examine a catheter specimen. If, on the other hand, there is no albumin in the specimen voided by the patient it will not be necessary to pass a catheter. If albumin is present a microscopical examination and an estimation of urea are advisable. Statistics show that this disease is more likely to occur in primiparae, and in my experience it has seemed that its occurrence was more to be feared in well-developed women who had been in the habit of taking a large amount of exercise and eating much solid food.

When albumin is found in considerable quantity in the urine of women in the later months the case should be taken in hand at once. In the first place the patient should be confined strictly to bed, and it is a very good plan to commence the treatment by giving nothing whatever but water for the first 48 hours. Afterwards milk, well diluted, may be given, and the diet should be limited to that until there is distinct improvement in the secretory function of the kidneys. Free purgation is essential,
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and for this purpose 30 gr. of pulv. jalapæ may be given, or sodii sulph. $\mathfrak{z}\text{i}$., in water $\mathfrak{z}\text{ii}$., every two hours, until free purgation is produced. Rectal injections of normal saline may be given after the bowels have been well emptied, or saline may be given sub cute. If in spite of this treatment the renal secretion does not improve, or if prodromata of eclampsia come on, the difficult question of induction of premature labour presents itself. On the whole, I am inclined to advise that labour should not be induced. I have seen some most satisfactory cases in which the treatment already set out has been followed by spontaneous delivery without the occurrence of eclampsia, even when the patient has seemed to be on the verge of an attack.

II.—TREATMENT OF THE FITS AND OF THE TOXÆMIA.

The practitioner is generally sent for as soon as a fit has occurred, and in some cases it will happen that there will have been no prophylactic treatment because the patient had not been under medical care, and neither she nor her friends will have suspected that anything was wrong until they are alarmed by the occurrence of a fit. The patient should be at once put to bed in a darkened room and preserved from all external causes of irritation as far as possible. An efficient nurse should be obtained, and she should be instructed that if another fit comes on the patient should be watched carefully to see that no harm befall her, as by suffocating in the bedclothes or falling out of bed. During the fit a piece of wood should be placed between the teeth to prevent the tongue being badly bitten. It is a good plan to place one side of the bed against the wall, as the nurse can then more easily control the patient. During the coma which follows a fit the head should be brought to the edge of the bed and turned well over on one side so as to allow saliva to escape and prevent it entering the trachea.

I may say here I am sure that those who have had cases of this kind among the poor will have appreciated the advantages of obtaining admission for them to the Maternity Hospital, which, if only for the treatment of this disease, has proved a most valuable addition to the charitable institutions of the city. If the patient is able to swallow she may be given water, but no food, not even milk, should be given. A quickly acting aperient may be given, and one of the best is croton oil m ii ., made up with powdered sugar and placed on the tongue; in addition a copious enema of soap and water may be given, and when this has acted a further rectal injection may be slowly given of 4 ounces of water containing 2 ounces of sulphate of magnesia. If the apparatus is at hand it is also well to wash out the stomach. Poultices to the loin probably encourage action of the kidneys, and at all events can do no harm. I am not in favour of hot-air baths. One of the few methods, in addition to purgation, upon which almost all writers are agreed is the administration of subcutaneous or intravenous injections of saline; chloride of sodium $\mathfrak{z}\text{i}$. to the pint, or, better still, $\mathfrak{z}\text{i}$. each of chloride and acetate of sodium; the salt may be obtained ready for use in glass containers, and Horrocks's small saline infusion apparatus is in my opinion the best and simplest, and should be carried in every midwifery bag.

Before proceeding to discuss the obstetrical aspect of the question I will refer briefly to some of the numerous other methods which have been advocated for dealing with the fits and toxæmia,

and I hope that we may hear their virtues or faults described in the discussion.

Chloroform.—If any operative interference is contemplated, even such a small procedure as puncture of the membranes, chloroform should be given, but I am entirely opposed to the method so frequently adopted of attempting to control the convulsions by its continuous or intermittent administration.

Morphia.—This treatment has been extensively advocated of late years; it is given by hypodermic injection in an initial dose of $\frac{1}{2}$ grain and subsequent doses of $\frac{1}{4}$ grain until a total amount of 2 grains has been reached. I have tried it, but have not been convinced of its advantages, and have not used it lately, and I would say the same of *venesection*.

Thyroid extract in doses of 30 to 40 grains has been suggested by Nicholson, of Edinburgh, who reports good results from its use.

Nitro-glycerine in subcutaneous injection up to 5 minims has been tried with successful results by Dr. McCarthy, one of our past presidents, and I have no doubt some of those present may be able to speak of its use.

Veratrum viride has been extensively used in America, and recently Haultain, of Edinburgh, has brought forward several successful results from the hypodermic injection of veratrine. This remedy is said to be particularly indicated in cases of high pulse tension.

Pilocarpine has been extensively used, but on account of its tendency to increase bronchial secretion it is, in my opinion, a dangerous drug.

Oxygen inhalation in cases where cyanosis is a marked symptom would be highly desirable.

Cold baths are said to be useful in cases in which hyperpyrexia is a marked symptom; this is a not infrequent complication of eclampsia, and is one of bad prognostic import.

Decapsulation of the kidneys and *lumbar puncture* have both been advocated and practised, but only to a limited extent, and apparently without any striking success.

III.—OBSTETRICAL TREATMENT.

There have been many differences of opinion revealed in the methods of treatment we have already been considering, but when we enter on the consideration of the obstetrical treatment we might describe the authorities as being divided into two hostile camps, their actions depending in a large degree on the views they hold as to the causation of eclampsia. The one, which I may call the Rotunda school, believes that the toxin is elaborated from the food taken in by the mother owing to some faults in her metabolism. The other, or what I may call the German school, considers it to be due to the foetus, and has advanced the theory recently that the symptoms are due to placental albumin finding its way into the maternal blood-stream in quantities greater than can be dealt with at the time by the antibodies which are elaborated to deal with it. It is on the presence of these antibodies in the maternal blood that Abderhalden's serum test for the diagnosis of pregnancy is based. Those holding the first view advise little or no interference with the process of labour; while to those holding the second no methods are too radical—induction of labour, accouchement forcé, vaginal and abdominal Cæsarean section being each advised in particular cases.

Personally, if labour has started and can be terminated quickly under an anæsthetic by forceps I

should not hesitate to interfere, but the difficult cases are those in which severe eclampsia is in progress, fit succeeding fit, with no lucid interval, and in which there is no sign of labour, the os remaining closed and the cervix not taken up.

I have treated cases of this kind on both the expectant plan and on the lines of active interference. In an article on the treatment of eclampsia which I wrote three years ago for Latham and English's "System of Treatment" I stated that, on the whole, I thought that the results from interference were slightly better than those obtained when no steps were taken to evacuate the uterus; since then, as a result of further experience of the policy of non-interference, I am inclined to modify those views, and the results in the last case which was under my care were so striking that I may perhaps be pardoned for quoting it.

The patient was admitted to the Queen's Hospital, Birmingham, on Dec. 1st last on the recommendation of Mr. Sydney E. Price, of Dudley Port. She was a primipara, 28 years of age, well developed, and in the seventh month of pregnancy; she had been having fits for about 48 hours and had had more than 80 altogether.

On admission the patient was œdematous, comatose, and her heart-beat was 160 and the pulse uncountable at the wrist. She was given an enema and subsequently a rectal injection of $\frac{3}{4}$ ii. magnes. sulph. in water. Two pints of saline were then injected slowly into the submammary region. She was admitted at 1 A.M. No obstetrical treatment was adopted, and at 7.30 A.M. she delivered herself of a stillborn male child by the breech; the placenta did not come away and had to be removed by hand. During the day she had another subcutaneous saline and mag. sulph. injection by rectum every six hours. She remained completely comatose for 36 hours, then slowly recovered consciousness and began to pass urine, and left the hospital well on the ninth day after admission.

This case was a striking illustration of the success of this line of treatment, which was carried out entirely by Miss Hemingway, my house surgeon, to whose persevering and careful attention the patient largely owes her life. If we decide on an active line we have a large number of measures open to us, and I will briefly consider these. They are puncture of membranes; bougies; packing the cervix and vagina; tents; rubber dilating bags; digital dilatation or dilatation by Bossi's dilators, followed by version or forceps; deep incision of the cervix, including the so-called vaginal Cæsarean section; and abdominal Cæsarean section.

Puncture of the membranes can be done with little disturbance of the patient, and is a harmless proceeding; it rapidly diminishes intrauterine tension, but as a means of inducing labour it is very uncertain in the time it takes; if done, every anti-septic precaution should be taken.

As regards the other methods, I would say emphatically of the slow ones (under which I include bougies, tents, packing of the cervix and vagina, and rubber dilating bags, including that of Champetier de Ribes) that they are contra-indicated in the treatment of eclampsia, and if there is one thing about which I am convinced in this question it is that interference, if decided upon, should be by rapid methods under anæsthesia, and I would select dilatation by Bossi's dilator or vaginal or abdominal Cæsarean section. I think that, on the whole, for this class of case the form of active treatment likely to be least prejudicial would be abdominal Cæsarean section, but I feel convinced that if a good trial be given to the milder methods it will be found that the results will be better than those obtained by the most heroic operative procedures.

EXPERIMENTAL PURPURA.

(Second Communication.)

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In a preliminary communication by one of us (Ledingham¹) to this journal on June 13th, 1914, the production of purpura hæmorrhagica in guinea-pigs, after inoculation with an antiserum prepared by immunising rabbits with guinea-pig blood plates, was placed on record. The present paper deals mainly with conjoint work carried out in June and July of last year, together with additional experimental data since obtained by one of us (L.) in the absence of the other (B.) on military service. The blood changes in guinea-pigs inoculated with anti-plate serum have been followed out in detail, and we propose in the first place to submit data on this point. A description will follow of experimental purpura in the rabbit and rat induced by inoculation with their respective anti-plate sera.

Blood Changes in Guinea-pigs after Inoculation with Anti-guinea-pig-plate Serum.

Notes on technique.—The blood plates were counted in a Thoma-Zeiss chamber, the blood from the ear being received into citrate solution containing brilliant cresyl blue which showed up the blood plates very clearly. The figures for the plate content per c.mm. obtained by this method in a series of normal guinea-pigs were as follows: 856,000, 752,000, 340,000, 640,000, 672,000, 688,000, 590,000, 696,000, 664,000, 592,000 (the latter four obtained from the same animal on four successive days), 592,000, and 584,000. The average of nine animals works out about 638,000 per c.mm. The hæmoglobin was estimated by Haldane's instrument. Attempts were also made to obtain coagulation times, but as we have not satisfied ourselves that the methods employed yield reliable results, at least so far as the guinea-pig is concerned, we refrain at present from alluding to them. The statement in the preliminary communication that the clotting is delayed rested entirely on observations of the bleeding time after puncture. Prolongation of the bleeding-time after puncture of the ear vein is a very marked feature in experimental guinea-pig purpura (as Duke asserts to be the case in human purpura), but this function may prove to have no direct relation to the coagulation time as ordinarily understood and calculated.

The three animals, B 3, B 4, and B 5, whose blood changes, &c., have been followed daily, received each one dose of anti-plate serum (1.5 c.c.) subcutaneously immediately after the control normal samples had been taken. The animals were purposely chosen of large size (over 400 gm.), so that a lengthy observation period would be available before the fatal conclusion (or possibly recovery) resulted. It had previously been determined that in animals of 250 gm. a dose of 1 c.c. of a particular batch of anti-plate serum had produced death in three, four, or five days with typical purpuric lesions. The data obtained from these three large animals, together with notes of the general condition, are found in Table I. (see p. 312).

¹Ledingham (1914): The Experimental Production of Purpura in Animals, &c., THE LANCET, vol. I., 1914, p. 1673.

Remarks on Table I.—It will be observed from the table that two of the animals died in 4 and 8 days respectively, while the third animal (B 3), whose initial weight was 450 gm., made a complete recovery after exhibition of purpuric skin lesions. On July 14th—i.e., 36 days after the first dose—it received a second dose of 2 c.c. of the serum. The reaction to this second dose was very slight, the blood plates only, showing a marked fall, while the purpuric skin spots were few. It is impossible here to analyse the blood changes in detail, but certain points deserve notice. 1. The total leucocyte count is not appreciably affected, though there is a distinct tendency to relative lymphocytosis (see the column of differential counts). 2. The blood plates are the elements which suffer the earliest and promptest reduction. Except in the case of B 5, which showed an abnormally low initial plate content, the plates fell to one-sixth to one-tenth of their initial figure. In animal B 3, which recovered, the rapid regeneration of red cells and hæmoglobin is well seen. In the last two columns data are appended with reference to the presence of hæm-agglutination in the shed blood, the minute changes in the red cells, and the general condition of the animals.

Post-mortem appearances of the above three animals. B 3.—Killed for examination on July 18th. A few skin hæmorrhages present at site of last inoculation. A few groups of faded punctiform hæmorrhages in stomach wall. No petechiæ on heart or lungs. Lymph glands not of hæmolymp character. Urine not stained with hæmoglobin.

B 4.—Dead June 16th. This animal had shown numerous skin hæmorrhages during the early days following inoculation of the serum. At necropsy these had faded and skin hæmorrhages were found only in the neighbourhood of the inoculation site. The red colour of the lymph glands was disappearing. Several hæmorrhages in the lungs and very numerous petechiæ in intestine. Stomach mucosa showed two round patches—one about the size of a sixpence, the other half that size—studded with small punctiform hæmorrhages. There was no ulceration. Liver yellowish. Spleen large, dark red, and friable. Kidneys and adrenals apparently normal.

B 5.—Dead June 12th. Numerous hæmorrhages at site of inoculation and a few scattered about elsewhere. Only a few lymph glands show the hæmolymp change. No hæmorrhages in intestine. Liver pale and yellowish. Spleen greatly enlarged and friable. Urine blood-stained. A few small hæmorrhages in testicles. *Both eyes show cataract.*

Blood Changes in Smaller Animals.

To complete this part of the subject tables are also appended showing the variations in the red cells, blood plates, hæmoglobin, &c., in three guinea-pigs of less weight. Each was inoculated on June 30th, 1914, with 1 c.c. of anti-plate serum subcutaneously. (See Tables II. A, II. B, and II. C).

TABLE II.A.—Guinea-pig 8.

Date.	Red cells.	Plates.	Hb.	Weight.
June 30th*	5,744,000	640,000	96%	240 gm.
July 1st	5,944,000	512,000	94%	220 "
" 2nd	5,130,000	320,000	80%	210 "
" 3rd	664,000	98,000	—	200 "

Death between 1 and 2 p.m. on July 3rd.

* Received 1 c.c. anti-plate serum subcutaneously.

Notes on blood picture and general condition.—July 1st: Blood picture normal except for one or two red cells showing polychromatophilia. Well-marked hæmagglutination. Pig lively. Distinct infiltrate over abdomen. July 2nd: Some irregularity in shape of red cells. Megalocytes of medium size, fairly numerous, mostly showing polychromatophilia. Some red cell shadows. Pig seems ill. Infiltrate softening. Some skin hæmorrhages. Gums of fairly good colour. July 3rd: Hæmagglutination of shed blood most pronounced. Great irregularity in size of red cells. Megalocytes showing

TABLE I.
Guinea-pig B 3.

Date.	Red cells.	Leucocytes.	Platelets.	Differential leuco- cyte count.				Hb.	Temperature.	Weight.	Colour index.	Appearance of blood on slide.	Remarks.
				Poly- nuclears.	Eosino- phils.	Lympho- cytes.	Mast.						
June								%	F.	grm.			
8*	7,520,000	17,400	856,000	77.3	1.8	18.8	1.4	96	98.0°	450	1	—	—
9	7,808,000	17,400	680,000	76.4	0.4	22.6	0.4	92	97.0°	410	0.92	—	Pig lively. Firm infiltrate over abdomen.
10	7,024,000	16,400	250,000	64.0	2.0	33.6	0.6	90	98.4°	395	1.0	Hæmagglutination commencing.	Infiltrate more marked.
11	6,256,000	14,800	148,000	56.0	1.5	42.0	0.5	76	99.0°	375	0.98	Hæmagglutination marked.	Animal ill; numerous skin hæmorrhages present.
12	3,968,000	14,400	180,000	—	—	—	—	62	99.0°	380	1.21	—	Animal very ill; infiltrate softening.
13	1,952,000	16,400	80,000	40.0	3.5	50.5	1.0	36	99.4°	400	1.4	Poikilocytosis; micro- and macrocytes; polychromatophilia; normoblasts and megaloblasts.	Condition unchanged.
14	2,924,000	16,200	398,000	39.0	4.5	56.0	0.5	30	99.8°	390	0.9	—	Much livelier; infiltrate disappearing.
15	2,064,000	20,400	368,000	38.0	2.3	61.6	1.0	50	98.6°	380	1.8	Hæmagglutination no longer present.	Condition good.
16	2,960,000	25,000	472,000	55.6	3.2	40.5	0.5	66	98.4°	—	1.7	Nucleated red cells, 3.0%.	"
17	4,336,000	24,200	428,000	42.0	1.0	57.0	—	80	99.8°	360	1.4	" " 2.3%	"
18	4,400,000	16,200	592,000	32.5	0.5	66.0	1.0	86	98.0°	370	1.4	" " 1.0%	"
19	4,544,000	18,400	436,000	42.0	—	57.0	1.0	90	100.0°	355	1.5	" " Nil.	"
20	4,240,000	14,200	624,000	32.6	0.3	67.3	—	94	98.4°	360	1.7	—	"
22	4,920,000	16,400	720,000	51.0	0.3	47.6	0.6	100	98.4°	360	1.5	—	"
29	5,520,000	8,800	896,000	45.0	0.5	54.5	—	100	99.8°	350	1.5	Except for some polychromatophilia blood picture is normal.	"
Interval of 3 weeks.													
July													
14†	5,952,000	—	712,000	—	—	—	—	104	—	320	1.3	Blood picture normal.	Animal in good health.
15	6,312,000	—	708,000	—	—	—	—	104	—	300	1.2	—	Small infiltrate at site of inoculation.
16	5,324,000	—	304,000	—	—	—	—	98	—	320	1.4	Hæmagglutination; some irregularity in size of red cells.	Animal ill; infiltrate softening; one or two skin hæmorrhages seen.
17	5,104,000	—	240,000	—	—	—	—	98	—	300	1.5	Some polychromatophilia; no nucleated red cells seen.	—
18	5,248,000	—	608,000	—	—	—	—	96	—	320	1.4	—	Killed for examination.

Guinea-pig B 4.

June													
8*	7,280,000	18,600	752,000	75.7	2.6	21.0	0.4	92	98.8°	400	1.0	—	—
9	7,808,000	15,800	752,000	71.6	1.5	25.9	0.8	92	99.6°	360	0.98	—	Well marked firm infiltrate over abdomen.
10	4,704,000	18,200	182,000	66.2	1.2	28.2	—	80	100.0°	380	1.3	Hæmagglutination commencing; some poikilocytosis.	Animal ill; numerous skin hæmorrhages.
11	3,952,000	14,800	190,000	56.0	1.5	42.0	—	66	100.0°	365	1.3	A few microcytes and megalocytes.	Animal very ill; infiltrate softening.
12	2,896,000	8,800	122,000	35.0	3.0	62.0	—	40	101.2°	380	1.1	Hæmagglutination marked; polychromatophilia; many nucleated red cells, 3%.	Condition unchanged.
13	1,232,000	18,800	144,000	29.0	2.0	68.0	1.0	30	99.8°	390	1.8	Normoblasts and megaloblasts very numerous, 8%.	" "
14	1,296,000	8,400	248,000	36.0	2.3	61.0	0.6	30	98.4°	310	1.8	Some punctate basophilia noted; phagocytosis of red cells by large mononuclears.	" "
15	?	8,600	286,000	34.8	1.3	61.1	2.3	24	96.0°	290	—	Nucleated red cells, 3%.	" "
16	1,952,000	15,200	248,000	50.2	—	47.7	1.7	32	94.0°	250	1.4	" " 2.5%.	Animal cold and collapsed; died during night.

Guinea-pig B 5.

June													
8*	5,840,000	12,800	340,000	78.2	0.4	20.3	—	94	98.6°	420	1	—	—
9	7,728,000	17,800	1,064,000	80.0	—	20.0	—	90	99.8°	385	0.74	—	Fairly well marked infiltrate over abdomen.
10	7,312,000	11,600	284,000	75.6	—	23.0	1.0	80	99.0°	380	0.61	Agglutination of red cells commencing. A few microcytes and poikilocytes.	Animal ill; no skin hæmorrhages seen.
11	2,980,000	9,400	298,000	58.0	4.0	35.0	0.5	66	99.0°	375	1.3	Hæmagglutination well marked; numerous polychromatophilic megalocytes.	Infiltrate softening; a few skin hæmorrhages to be made out.
12	1,200,000	10,800	330,000	61.0	6.0	32.0	1.0	—	94.0°	350	1.3	Fair number of normoblasts and megaloblasts, 3%.	Animal in extremis, cold and collapsed; died between 9 and 10 p.m.

* Subcutaneous injection of 1.5 c.c. anti-guinea-pig platelet serum.

† Received second dose of 2 c.c.

polychromatophilia, very numerous; poikilocytes; no punctate basophilia. A few normoblasts, some showing pyknosis and karyorrhexis of nucleus. A few red cells with "Jolly" bodies. Pig cold and collapsed; blood thin and watery; no eye changes observed. Post mortem: Gelatinous blood-stained infiltrate over abdomen and thorax. A fair number of small punctiform hæmorrhages in skin. Numerous hæmorrhages in subcutaneous tissue. No eye changes. Spleen dark red and friable. Bladder filled with dark, blood-stained urine. Testicles showed several large hæmorrhages. No hæmorrhages in stomach or intestines. Lymph glands of red hæmolymp character. Bone marrow dark red.

TABLE II.B.—Guinea-pig 9.

Date.	Red cells.	Plates.	Hb.	Weight.
June 30th*	6,620,000	672,000	98%	260 gm.
July 1st	5,952,000	480,000	96%	260 "
" 2nd	5,616,000	272,000	84%	240 "
" 3rd	720,000	392,000	16%	230 "

Death between 1 and 2 P.M. on July 3rd.

* At 5 P.M. received 1 c.c. anti-plate serum subcutaneously.

Notes on blood picture and general condition.—July 1st: Pig lively. Well-marked firm infiltrate over abdomen and extending forward to thorax. Blood picture normal except for one or two red cells showing polychromatophilia. July 2nd: Hæmagglutination well marked. Some red-cell shadows. Irregularity in size of red cells commencing. Megalocytes of medium size showing polychromatophilia, but not numerous. Animal ill. Infiltrate softening; some skin hæmorrhages; gums of good colour. July 3rd: Hæmagglutination extreme. Blood very watery; oozing after vein puncture. Irregularity in size of red cells. Megalocytes showing polychromatophilia; a few deeply basophile red cells; some poikilocytes. A few normoblasts, some showing punctate basophilia of cytoplasm. Pig collapsed and cold. No eye changes visible. Post mortem: A few small punctiform hæmorrhages in skin. Glands do not show hæmolymp change. No eye changes. Bladder contained dark blood-stained urine. No hæmorrhages in internal organs.

TABLE II.C.—Guinea-pig 10.

Date.	Red cells.	Plates.	Hb.	Weight.
June 30th*	6,680,000	638,000	102%	360 gm.
July 1st	6,170,000	384,000	100%	320 "
" 2nd	5,504,000	328,000	84%	300 "

Death during night of July 2nd-3rd.

* At 5 P.M. received 1 c.c. anti-plate serum subcutaneously.

Notes on blood picture and general condition.—July 1st: Blood picture normal. Hæmagglutination well marked. Pig lively. Infiltrate not very well marked. July 2nd: Irregularity in size of red cells. Fair number of megalocytes, mostly showing polychromatophilia. Some red-cell shadows. Pig not well. Infiltrate more marked, but softer. Some skin hæmorrhages, one about the size of a threepenny-piece. Post mortem: Well-marked gelatinous blood-stained infiltrate. Numerous small punctiform hæmorrhages in skin. Glands of hæmolymp character. A few small hæmorrhages in lungs and in wall of left ventricle. Spleen much enlarged and friable. One or two minute petechiæ in pancreas. Bladder full of blood-stained urine. Numerous hæmorrhages in wall of large gut and in testicles.

Remarks on Tables II.A, II.B, and II.C.—These three animals, whose initial weights were 240 gm., 260 gm., and 360 gm., did not survive beyond the third day. All showed pronounced purpura. The effect of the serum on the blood elements is essentially similar to that obtained in the case of the larger animals of Table I. Notes regarding the minute changes in the red cells, the general condition of the animals during life, and the post-mortem appearances are appended to the tables.

Control Experiments with other Sera: Action of Anti-leucocytic Serum.

This serum was prepared by immunising rabbits with leucocytes obtained from the peritoneal exudates of guinea-pigs which were killed 4 hours after an intraperitoneal inoculation of 5-10 c.c. of sterile broth. Such exudates, as is

well known, consist almost entirely of polymorphonuclear leucocytes, and if great care is taken in manipulation of the animals after death the risk of admixture with red cells can be very largely avoided. The exudates are taken up in citrated saline and thereafter washed in normal saline. The serum of the rabbits so immunised proved to be quite as fatal to guinea-pigs as the anti-plate serum, but did not produce purpuric phenomena. We append two tables (Nos. III.A and III.B) showing the action of the serum on the blood elements throughout the course of the experimentally induced disease.

TABLE III.A.—Guinea-pig 15.

Date.	Red cells.	Plates.	Leucocytes.	Differential count.†				Hb.	Weight.
				P.	E.	L.	Ma.		
July 8th*	6,128,000	592,000	10,200	40.5%	0.5%	58.5%	0.5%	100%	290 Gm.
" 9th	4,440,000	456,000	2,900	3.0%	0.5%	96.0%	0.5%	80%	250
" 10th	2,080,000	640,000	10,800	10.0%	1.0%	88.0%	1.0%	40%	230
" 11th	?	?	?	25.0%	2.0%	72.5%	1.5%	?	220

Death at 3 P.M. on July 11th.

* At 5.30 P.M. received 1 c.c. anti-leucocyte serum subcutaneously.

† P = Polymorphonuclears. E = Eosinophiles. L = Lymphocytes. Ma = Mast cells.

Blood picture and general condition.—July 9th: Red cells irregular in size; numerous polychromatophilic megalocytes; a few red cells showing "Jolly" bodies; no nucleated red cells. The polymorphonuclear leucocytes are degenerated, their protoplasm being vacuolated and the granules appearing as indistinct basophile knots in cytoplasm. Pig ill. Small infiltrate under skin; no skin hæmorrhages. July 10th: Large numbers of megalocytes; some microcytes; well-marked polychromatophilia; nucleated red cells (normoblasts) 1.5 per cent. of white cells. Some phagocytosis of red cells by mononuclears. General condition unchanged. No skin hæmorrhages. July 11th: Some red cells show punctate basophilia; nucleated red cells (normoblasts and megaloblasts) 21 per cent. of white cells. Neutrophile myelocytes present. Pig ill and collapsed; hæmoglobinuria; no eye changes. Post mortem: No skin hæmorrhages. Lymph glands appear normal. No hæmorrhages in internal organs. Spleen greatly enlarged and friable. Bladder full of blood-stained urine.

TABLE III.B.—Guinea-pig 16.

Date.	Red cells.	Plates.	Leucocytes.	P.	L.	Ma.	Hb.	Weight.
July 8th*	6,368,000	584,000	14,400	51.0%	49.0%	—	98.0%	Gm. 270
" 9th	5,560,000	648,000	2,600	3.0%	97.0%	—	90.0%	240
" 10th	2,680,000	640,000	8,000	6.6%	88.6%	3.3%	52.0%	220
" 11th	1,608,000	776,000	13,200	34.0%	67.5%	0.5%	22.0%	200

Pig dead at 6 P.M. on July 12th.

* At 5.30 P.M. received 1 c.c. anti-leucocyte serum subcutaneously.

Blood picture and general condition.—July 9th: Slight hæmagglutination. Irregularity in size of red cells; poikilocytes; polychromatophilic megalocytes; one nucleated red cell seen. Degeneration of polymorphonuclears as in No. 15. Pig seems ill. Very slight infiltrate; no skin hæmorrhages. July 10th: Marked irregularity in size of red cells; no nucleated red cells. Infiltrate soft; no skin hæmorrhages. July 11th: Many megalocytes showing polychromatophilia; some red cells with punctate basophilia; nucleated red cells (normoblasts) 3.5 per cent. of white cells. Phagocytosis of red cells observed. Myelocytes 4 per cent. (total neutrophiles, 34 per cent.). Pig very ill. No eye changes. Post mortem: No skin hæmorrhages. No eye changes. No hæmorrhages in internal organs. Spleen slightly enlarged. Hæmoglobinuria. Liver yellowish.

It will be seen from the tables that while the red cells were very considerably affected, the blood plates were not appreciably altered in number. The most striking phenomenon in connexion with this serum is the great but temporary fall in the absolute number of leucocytes. In this fall, as the differential counts show, the polymorphonuclear cells are chiefly involved. No hæmorrhages were seen on the skin during life or in the organs after death. In both cases hæmoglobinuria was a well-marked feature.

Action of Anti-red-cell Serum (Ordinary Lytic Serum).

The effects of injecting lytic serum into the animal whose red cells have been used for immunisation have been studied by several workers, and notably by Muir and McNee (1912),² who have experimented with anti-rabbit red-cell serum prepared by immunisation of the goat with rabbit red cells. No record has been found of the production of purpuric lesions by such sera. It was, however, considered advisable to prepare a lytic serum for comparative tests, and for this purpose rabbits were immunised with washed guinea-pig red cells in the usual way. This serum has been tested on guinea-pigs only in a few cases so far. It is very lethal for guinea-pigs, but no evidence has been obtained that it can give rise to generalised purpura. As we shall see later, an anti-rat-red-cell serum proved to be equally devoid of purpura-producing effects when injected into rats, whereas the anti-rat-plate serum consistently produced purpura.

The Question of Dosage of Anti-plate Serum.

To test this point four guinea-pigs, each exactly 250 gm. weight, received the following quantities of anti-plate serum subcutaneously in the dorsal region on June 2nd, 1914: 2 c.c., 1 c.c., 0.5 c.c., and 0.1 c.c. (volume in all cases made up to 2 c.c. with saline). The animal which received 2 c.c. died on June 6th, showing an enormous number of hæmorrhages, with petechiæ on the heart and lungs and double cataract. The animal which received 1 c.c. died on June 4th (i.e., after 42 hours). There was beautiful miliary purpura over the whole skin, with petechiæ on the heart and lungs. Cataract had not developed. The animal which received 0.5 c.c. developed, like the others, a local swelling which had practically disappeared on June 6th. It died ten days later, but showed no purpuric lesions either internally or externally. Very probably any such lesions that may have occurred and escaped detection in the early days after inoculation had faded. The animal which received 0.1 c.c. showed only very slight local swelling for a few days after inoculation, and remained well.

Experimental Purpura in the Rabbit.

An anti-rabbit-plate serum was prepared by immunising the goat with rabbit blood plates recovered from rabbit blood by a method similar to that employed in the case of guinea-pig blood. Each dose given to the goat consisted of the blood plates recovered from the mixed blood of 12 rabbits. About nine such injections were given. The serum of the goat was tested at various times during the course of immunisation, and it will be convenient to detail briefly the results obtained with this serum on various rabbits, as in certain cases highly interesting pathological lesions were

found at necropsy. In the earlier cases of the series purpuric lesions in the skin were unfortunately not searched for.

Rabbit 1.—Received on June 20th 4 c.c. anti-plate serum subcutaneously (from test bleeding of goat after three doses). June 21st: Considerable soft local swelling. June 23rd: Swelling very slight. Rabbit remained well till July 15th, when sudden death took place. Post mortem: Animal well nourished. Peritoneal cavity filled with clotted blood and extravasated faeces. *Two large fairly clean-cut perforations of the bowel just below cæcum. A few purpuric spots in small intestine. Some faded purpuric spot in skin, especially that of hind limbs. Large hæmorrhages in the psoas muscle and in the muscles over tibia and fibula. Effusions of blood in the periosteal sheaths of these bones. Stomach mucosa showed a cluster of minute hæmorrhages, but there was no general purpura of the organ. Liver and lungs healthy.*

Rabbit 2.—Received on June 20th 1.5 c.c. intravenously (test bleeding after four doses). Remained well.

Rabbit 3.—Received on June 30th 2 c.c. intravenously (test bleeding after four doses). Remained well till July 3rd, when it was given a further dose of 3 c.c. intravenously. Death occurred two hours thereafter. Post mortem: *Perforated ulcer of colon adherent by film of lymph to abdominal wall. Purpuric patches round the ulcer. The colon contained another large ragged ulcer with greyish scurf on it. It was not perforated. In the stomach were two similar large non-perforated ulcers. Right lung collapsed and congested. Some free blood in right pleural cavity. The liver contained a few nodules of pseudotuberculosis, so that some doubt remains whether the late purpuric lesions met with may have been of bacterial origin. This is, however, unlikely.*

Rabbit 4.—Small Russian. Received on July 6th 5 c.c. intraperitoneally (test bleeding after four doses). July 7th: Three or four purpuric spots in skin over sternum. July 8th: Very large number of purpuric spots on skin of abdomen and back, and especially of extremities. Petechiæ on ear. On the same day it received a further dose of 3 c.c. intraperitoneally. July 9th: Rabbit looks well. Received a third dose of 3 c.c. intravenously and died in convulsions five minutes afterwards. Post mortem: Enormous number of skin hæmorrhages. Miliary purpura of stomach. One or two petechiæ on epicardium, and a good number on large bowel and under kidney capsule. Very large number in skin covering fore and hind extremities and tail. No cataract. Large amount of free blood in peritoneal cavity. One or two reddish lymph glands in axilla and groin. Urine quite clear.

Rabbit 5.—Very small Russian weighing 440 gm. Received on August 27th 4 c.c. intraperitoneally (test bleeding after seven doses). August 28th: Animal looks fairly well. Numerous purpuric spots on skin of abdomen and extremities. Weight 431 gm. August 29th: Animal dead. Post mortem: Beautiful purpura of skin. *Extensive purpura of cæcum and large bowel. A few spots in small intestine and in stomach. Numerous petechiæ in diaphragm.*

Blood Changes in Experimental Purpura of the Rabbit.

We append three tables (Nos. IV. A, IV. B, and IV. C) in which are recorded the blood changes, &c., in the case of three rabbits inoculated intraperitoneally with the same dose (3 c.c.) of anti-rabbit-plate serum.

TABLE IV. A.—*Rabbit 33.*

Date.	Red cells.	Plates.	Leucocytes.	P.	E.	L.	Hb.	Coag. time.
July 15th*	5,792,000	648,000	12,200	28.0 %	2.0 %	70.0 %	80.0 %	1' 47"
„ 16th	4,864,000	100,000	10,400	54.5 %	0.5 %	45.0 %	66.0 %	2' 55"
„ 17th†	4,872,000	496,000	9,800	27.5 %	1.0 %	71.5 %	64.0 %	1' 48"

* At 4 P.M. received 3 c.c. anti-rabbit-plate serum intraperitoneally.

† Killed with ether to obtain specimen of skin.

² Muir, R., and McNee: The Anæmia Produced by a Hæmolytic Serum, *Journal of Pathology and Bacteriology*, vol. xvi., p. 410.

Blood picture and general condition.—July 16th: Hæmagglutination present. Some irregularity in size of red cells; a few red cells showing polychromatophilia; one or two nucleated red cells seen. Rabbit quite lively. Bleeds very readily when ear vein is punctured; marked purpura over entire skin. July 17th: No nucleated red cells seen; a few showing polychromatophilia. Rabbit quite lively. No fresh outburst of purpura so far as can be detected. Post mortem: Extreme purpura of skin. Lymph glands not of frankly hæmolymp character. A few punctiform hæmorrhages in stomach and large gut. Some extensive hæmorrhages in muscles of thigh. No hæmoglobinuria.

TABLE IV.B.—Rabbit 34, weight 920 gm.

Date.	Red cells.	Plates.	Leuco-cytes.	P.	E.	L.	Ma.	Hb.	Coag. time.
July 20th*	5,424,000	672,000	12,400	15.0%	0.5%	83.5%	1.0%	80%	0' 58"
" 21st	5,016,000	106,000	14,400	22.0%	—	77.5%	0.5%	70%	2' 0"
" 22nd	3,824,000	232,000	12,100	30.5%	—	68.5%	1.0%	50%	1' 5"
" 23rd	3,960,000	454,000	7,800	25.0%	0.5%	74.5%	—	56%	—
" 24th	4,344,000	752,000	8,400	—	—	—	—	58%	—
" 25th	4,184,000	760,000	18,000	—	—	—	—	58%	—
" 29th	4,416,000	800,000	10,000	—	—	—	—	70%	—

* At 4.15 P.M. received 3 c.c. anti-rabbit-plate serum intraperitoneally.

Blood picture and general condition.—July 20th: Before injection one or two nucleated red cells were seen in film. July 21st: Little change in red cells; one normoblast seen. Animal drowsy and unwell. Hæmorrhages in skin, and specially marked in skin of ears. The flicking or rubbing of the ears produces an immediate crop of small punctiform hæmorrhages. July 22nd: Many red cells showing polychromatophilia; marked irregularity in size of red cells; no nucleated red cells seen. Rabbit quite lively. Hæmorrhages still present in skin. July 23rd: Marked irregularity in size of red cells; some large megalocytes showing polychromatophilia; no nucleated red cells seen. Animal's condition good. July 29th: Animal's condition good. Purpuric spots in skin mostly faded. A few still present on ears.

TABLE IV.C.—Rabbit 35, weight 700 gm.

Date.	Red cells.	Plates.	Leuco-cytes.	P.	E.	L.	Ma.	Hb.	Coag. time.
July 20th*	4,240,000	640,000	9,600	25.5%	0.5%	72.5%	1.5%	62%	1' 2"
" 21st	3,696,000	98,000	16,400	52.5%	—	47.0%	0.5%	50%	30"
" 22nd	3,840,000	355,000	9,000	22.0%	2.0%	76.0%	—	44%	—
" 23rd	3,856,000	472,000	6,600	50.0%	0.5%	49.5%	—	48%	—

Killed with ether at 2 P.M. on July 23rd.

* At 4.45 P.M. received 3 c.c. anti-rabbit-plate serum intraperitoneally.

Blood picture and general condition.—July 20th: Before injection no nucleated red cells were seen. July 21st: Hæmagglutination present but not marked. Some irregularity in size of red cells; some poikilocytes; no nucleated red cells. Animal ill. Hæmorrhages in skin, and especially in skin of ears. July 22nd: No nucleated red cells. Animal's condition unchanged. July 23rd: No nucleated red cells. Condition unchanged. Post mortem: Skin shows numerous hæmorrhages. Lymph glands appear normal. Numerous intramuscular hæmorrhages in diaphragm. No hæmorrhages in stomach or intestine; no hæmoglobinuria. Some hæmorrhages of moderate size in thigh muscles.

It will be seen that all three animals developed marked generalised purpura from which they recovered. They were, however, killed for examination purposes at various dates, and the post-mortem appearances are appended to the tables. The marked and early fall in the plate content corresponding with the early onset of purpuric skin phenomena will be noted. In these rabbits coagulation times were taken by the Dale-Laidlaw method,³ the blood being drawn into short capillary

tubes, each containing a small shot. The data so obtained are included, but we are not satisfied that they can be depended upon, in view of the variations we have obtained by this method in normal rabbits examined at short intervals. This question is reserved for further investigation.

Experimental Purpura in the Rat.

Rabbits were immunised with rat platelets recovered from fairly large quantities of rat blood. Each immunising dose consisted of the plates obtained from the mixed blood of 24 sewer rats. Three rabbits were immunised, two of which died during the course of immunisation. From the remaining rabbit a small test bleeding was taken a few days after it received its second dose. The serum so obtained was tested on a rat and found to be efficacious in producing purpura (see below). The rabbit received a third and a fourth dose of rat plates, but unfortunately a few minutes after the intravenous injection of the latter dose it developed marked anaphylactic symptoms. It was felt that the serum of such an animal would probably be largely deprived of its anti-plate elements owing to absorption by the large dose of fresh plates injected. The animal was, however, bled when moribund and the serum so obtained filtered. As we shall see, this serum possessed marked purpura-producing property.

Effect of Injecting Anti-rat-plate Serum into Rats.

Rat 1.—Received on Sept. 29th 2.5 c.c. subcutaneously in dorsal region near root of tail (from test bleeding after second dose). Sept. 30th: Numerous minute skin hæmorrhages round the area of inoculation and along the tail. None elsewhere. Oct. 1st: The animal now moribund was killed with ether. Post mortem: A large oval skin hæmorrhage was found at site of inoculation, with smaller petechiæ at the periphery. Numerous hæmorrhages in skin of tail. A few in pyloric portion of stomach. No generalised skin purpura. The result, however, showed that the serum from this early test bleeding possessed the purpura-producing property.

Rat 2.—Received on Oct. 13th, 1914, 3 c.c. subcutaneously (from moribund rabbit after its fourth dose). Oct. 14th: A few petechiæ noted on skin of hind limbs. Oct. 15th: Animal not examined. Oct. 16th: Animal very ill and drowsy; was accordingly killed with ether. Post mortem: Beautiful generalised skin purpura. Large hæmorrhage in muscles of one fore limb; marked purpura of tail. Several small hæmorrhages in pyloric portion of stomach. Lymph glands bright red in colour. No hæmoglobinuria. No cataract.

Rat 3.—Received on Oct. 14th 4 c.c. subcutaneously. Oct. 15th: Cluster of small hæmorrhages near site of inoculation. Oct. 16th: More hæmorrhages in the neighbourhood. Animal very ill and drowsy. Oct. 17th: Rat dead. Post mortem: Generalised skin purpura. Red lymph glands throughout. Petechiæ in pyloric portion of stomach and throughout a considerable part of the small intestine, also in sigmoid and rectum. Urine in bladder blood-stained.

On the whole, the lesions in rat purpura are essentially similar to those met with in experimental guinea-pig purpura except that cataract, so frequently found in guinea-pigs dying of the experimental disease, has not so far been noted in rats. As mentioned above, the effect of anti-rat red-cell serum was investigated on rats. No purpuric lesions resulted.

Action of Heterologous Anti-plate Sera.

The question of the specificity of these anti-plate sera is of importance, and at various times control experiments in settlement of this point have been made. Invariably the result has been that the animal does not respond to the heterologous anti-plate serum—e.g., only slight inconvenience and certainly no purpura follow the

³ Dale, H. H., and Laidlaw, P. P.: A Simple Coagulometer, Journal of Pathology and Bacteriology, vol. xvi., p. 351.

injection of the guinea-pig with anti-rabbit-plate serum, and *vice versa*. Recently, being in possession of a supply of anti-guinea-pig-plate, anti-rabbit-plate, and anti-rat-plate sera, one of us has carried out the following experiment, which shows clearly that a heterologous anti-plate serum has no purpura-producing property.

TABLE V.

Rat A, 150 gm.,	received 7/12/1914,	3 c.c. anti-rat-plate serum.
" B, 90 "	" "	3 " anti-guinea-pig-plate serum.
" C, 140 "	" "	4 " anti-rabbit-plate serum.
(All inoculated subcutaneously.)		
Guinea-pig A, 230 gm.,	received 7/12/1914,	3 c.c. anti-guinea-pig-plate serum.
" B, 230 "	" "	3 " anti-rat-plate serum.
" C, 230 "	" "	4 " anti-rabbit-plate serum.
(All inoculated subcutaneously.)		
Rabbit A, 400 gm.,	received 7/12/1914,	4 c.c. anti-rabbit-plate serum.
" B, 380 "	" "	4 " anti-guinea-pig-plate serum.
" C, 380 "	" "	4 " anti-rat-plate serum.
(All inoculated intraperitoneally.)		

On Dec. 8th Rat A showed several purpuric spots near tail and also on legs. Other two rats showed nothing and appeared quite lively. Guinea-pig A had an extensive hæmorrhagic infiltrate over the whole of the abdomen and did not appear well. The other two animals showed no purpura and were quite lively. Rabbit A had numerous purpuric spots all over its skin and was obviously ill. The other rabbits were quite lively and showed no purpura. On Dec. 9th the animals inoculated with the homologous sera were still more drowsy and listless. Other animals appeared quite well. On Dec. 10th Guinea-pig A and Rabbit A dead.

Post mortem: Guinea-pig A showed beautiful skin purpura, extensive cedematous and hæmorrhagic infiltrate spreading over abdomen from seat of injection and extending deeply into the thigh muscles, and miliary purpura of stomach. There was no cataract, and the urine was quite clear. Rabbit A showed a large cedematous and hæmorrhagic subcutaneous area over upper thorax, neck, and fore limbs, also a larger hæmorrhage under skin of left cheek. Miliary purpura of stomach and slight purpura of intestine. Liver yellow and mottled. No cataract. Urine quite clear.

The other animals remained well and put on weight.

Dec. 11th: Rat A dead. Post mortem: Purpura of skin particularly marked over skull and cheek. A few spots in pyloric portion of stomach and a few in small intestine. Urine was blood-stained (hæmoglobinuria).

The other animals, which received the heterologous plate sera, remained well and put on weight.

Summary and Conclusions.

1. Data have been recorded on the blood changes in guinea-pigs after inoculation with anti-guinea-pig-plate serum. The early fall in the number of platelets simultaneously with the outburst of skin purpura is found to be a marked feature.

2. Purpura has also been produced in rabbits and rats by inoculation with the respective anti-plate serum. The blood changes in rabbits have been followed with results similar to those obtained in guinea-pigs.

3. Anti-plate serum, in addition to its purpura-producing properties, possesses in common with other cytolytic sera considerable lytic powers, which in all probability contribute largely towards the fatal issue in small animals. Death, however, may occur as the result of extensive hæmorrhages alone without any obvious lytic changes as evidenced by hæmoglobinuria.

4. Sera obtained by immunisation with red cells or leucocytes do not produce purpura.

5. Purpura is not produced by inoculating animals with heterologous anti-plate sera.

The histology of the purpuric lesions will form the subject of a later communication.

A CONTRIBUTION TO THE STUDY OF SHELL SHOCK.

BEING AN ACCOUNT OF THREE CASES OF LOSS OF MEMORY, VISION, SMELL, AND TASTE, ADMITTED INTO THE DUCHESS OF WESTMINSTER'S WAR HOSPITAL, LE TONQUET.

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THE remarkably close similarity of the three cases which are described in this paper is shown in the following synopsis:—

	Case 1.	Case 2.	Case 3.
Cause...	Shells bursting about him when hooked by barbed wire.	Shell blowing trench in.	Shell blew him off a wall.
	Preceding period of sleeplessness.	As in Case 1.	?
Vision ...	Amblyopia. Reduced visual fields.	"	As in Case 1.
Hearing ...	Slightly affected for a brief time.	Not affected.	As in Case 2.
Smell ...	Reduced acuity.	Total anosmia.	Unilateral anosmia and parosmia.
Taste ...	Almost absent.	Reduced acuity.	As in Case 2.
Other sensations ...	Not affected.	As in Case 1.	As in Case 1.
Volitional movements	"	"	"
Defecation	Bowels not opened for five days following shock.	"	"
Micturition	Urine not passed for 48 hours.	Not affected.	As in Case 2.
Memory ...	Apparently slightly affected.	Very distinct amnesia.	"
Result of treatment	Gradual improvement by rest and suggestion.	As in Case 1, supplemented by hypnosis	As in Case 1.

CASE 1.—Private, aged 20. Admitted on Nov. 5th, 1914. On the nights of Oct. 28th and 29th he slept in the booking hall of X station; "not much sleep there." On the 30th he motored in a bus from X to Y, arriving there at 7.30 P.M.; billets found at 8 P.M.; on guard from 10–11.30 P.M., and from 1.45–3.45 A.M. At 11 A.M. on the 31st for the first time he went to the firing line. His platoon advanced to one set of trenches and then crossed the road to another, only to find it filled with cavalry and to be told that there was no room for them. During the retirement from this trench, at 1.30 P.M., they were "found" by the German artillery. Up to that time he had not been feeling afraid; he had "rather been enjoying it," and was in the best of spirits until the shells burst about him.

He was now retiring over open ground, kneeling on both knees and trying to creep under wire entanglements, when two or three shells burst near him. As he was struggling to disentangle himself from the wire three more shells burst behind and one in front of him. (An eye-witness in this hospital says that his escape was a sheer miracle.) After the shells had burst he succeeded in getting back under the wire entanglements; all his comrades had retired already. He managed to get into a trench, and as the firing slackened he rejoined his company. Immediately after the shell had burst in front of him his sight became blurred. It hurt him to open his eyes, and they "burned" when closed. The right eye seemed to have "caught it" more than the left. At the same moment he was seized with shivering, and cold sweat broke out especially round the loins. He thinks the shell behind him gave him the greater shock—"like a punch on the head, without any pain after it." The shell in front out his haversack clean away and bruised his side, and apparently it burned his little finger. It was this shell, he says, which "caused his blindness."

Falling in with two comrades, he was led by them, one on either side, to the dressing station. He opened his eyes occasionally to see where he was going, but everything

appeared blurred except at the first moment of opening. There was no doubling of objects; they seemed to "dissolve." He was crying the whole time and worrying as to whether he was going blind. He kept turning over in his mind the succession of events from the beginning of the advance to the bursting of the shells. At the dressing station he was still crying and shivering; he was taken thence to a hospital by horse ambulance, where he was given brandy, and then sent on by horse ambulance to another hospital, and thence by motor ambulance at night to X, where he arrived early on Nov. 1st. He thinks he must have slept on the ambulances, as he remembers nothing.

From Nov. 1st to 4th at X; his eyes were bandaged and drops were instilled which "burnt terribly." No numbness or anaesthesia observed. Slight deafness, which soon passed off. On Nov. 1st he shivered in bed almost incessantly; his thoughts were still running on events between the advance and the bursting of the shells. No shivering after Nov. 3rd. He says he did not micturate from Oct. 30th P.M. until Nov. 2nd P.M., and did not defecate from Oct. 30th until Nov. 5th (after aperient here). No involuntary passage of urine or feces.

Past history.—He had been for two months in the Aisne district on the lines of communication, sleeping badly all that time owing to lumbar pains (and toothache during the first three weeks). He had failed to pass a medical examination some time previously because of renal trouble (abnormal amount of albumin in water) until after a long period of treatment. He had had lumbar pains a few nights before coming to France.

Present condition.—Nov. 6th.—A well-nourished man of nervous temperament, flushed complexion, and dark eyes. Movements normal; skin sensations normal. Eyes, fundi normal. Fields distinctly contracted, especially on temporal sides. Right eye—can read at normal distance, but "things have a slight haze round them." Left eye—the haze is much greater; is unable to see letters until they are quite near.

Nov. 7th.—Says he has lost his sense of taste and smell since the shells burst round him. Gets up now.

Nov. 9th.—Woke up last night and found himself crying, "not thinking of anything in particular"; he at once "pulled himself together."

Nov. 10th.—Tested for taste (tongue protruded) and smell in order mentioned:—

- (1) Very strong sol. of sugar ... Slightly sweet (only tasted after the tongue had been moved about).
- (3) " " " salt ... No taste.
- (4) " " " acid ... No taste, but "a peculiar feeling as if it dried the tongue."
- (7) " " " quinine... No taste (later, "a peculiar feeling of biting on the tongue").
- (5) Carbolic acid (1:40) ... No smell.
- (6) Ether ... Faint smell, like collodion.
- (8) Peppermint (strong) ... Faint smell of peppermint.
- (2) Tincture of iodine ... No smell.

Hypnosis tried; patient explains later—"I insisted on resisting." Suggestions offered during concentration. Nov. 15th.—Says his taste and smell are returning. Fields of vision still restricted, perhaps slightly less so. Nov. 15th.—He was transferred to England for further treatment.

On Nov. 16th the patient was admitted to the Middlesex Hospital, London, under the care of Mr. Arnold Lawson, who has kindly allowed me to append his note of the condition of the patient's eyes:—

Nov. 25th: R. E.	+1.75	L. E.	-1
	+2.25		+2

Visual acuity, each eye 6/36; when under correction 6/18. Just below and to the outer of the left disc is a small clear buff patch in the choroid. The upper inner margins of the discs are somewhat blurred and more densely white than elsewhere. These features are probably not pathological. The fields are definitely restricted, especially on the nasal side of the retina, being limited here to 40° in the right eye and to 70° in the left. No central scotoma. Taste and smell were found affected on admission, but these recovered earlier.

Nov. 27th.—General condition improved. Not so "nervy." Visual acuity under correction, R.E. 6/24, L.E. 6/18. The patient is now (Feb. 1st) attending the hospital as an out-patient.

CASE 2.—Corporal, aged 25. Admitted on Dec. 11th, 1914. The patient says that he was buried for 18 hours on Dec. 8th owing to a shell bursting and "blowing in" the trench in which he lay. Can remember nothing until he found himself in a dressing station at a barn lying on straw. He says that then he could not see and that for this reason he fell over something when he got up and walked about there. As to his past history, he came out to the war on August 13th, and was in the last two days' retreat at Mons and after at La Bassée. Has slept very badly since the start, often when billeted taking large doses of whisky to procure sleep. Has led a "fast" life and has had recent domestic worry.

Present condition.—Dec. 12th.—A healthy-looking man with flushed face and large dark eyes with wide pupils. His general manner does not inspire one with confidence in his reliability. Complaints of pains in chest, then, back and limbs, and of difficulty in seeing. The pains are chiefly in the knees and ankles. His sight has been very indistinct since he was "buried." Says that if he looks at an electric light it takes him "five minutes" before he can see anything again. His vision has much improved since Dec. 8th, but he can only read when the type is close to his eyes and not for long; "it all becomes blurred." Heart, lungs, and joints appear normal. Abdomen distended and tender in lower part. Bowels not opened for five days. Aperient is effective. Vision: R.E. 5/60, L.E. 2/60. Media clear. Fundi natural.¹ Pupils and eye movements normal. Hearing normal.

Dec. 17th.—Smell: Fails to smell peppermint, ether, iodine tincture, and carbolic acid (1:40). Taste (tongue protruded): Very strong solution of sugar—tasted only after movements of tongue are allowed. Very strong solution of salt—"feels like petrol does on the hand," tasted only after movements of the tongue are allowed. Solution of acid—"salty, like alum."

Dec. 19th.—Complains that he does not sleep, but the sister in charge of his ward says that he sleeps well. Treatment by suggestion (during and without hypnosis) was begun, and continued daily until patient's transfer to England. On the second trial and afterwards a state of light hypnosis was easily induced. The deeper stages, involving hallucinations, anaesthesia, and post-hypnotic amnesia, could not be reached on any occasion. But the lighter stages (in which the patient responded to suggestions that he could not open his eyes, close his hand, stop laughing, and the like) sufficed to bring about assurance of a good night's sleep, gradual restoration of memory, and (later) improvement in visual and olfactory acuity, in near vision, in visual fields, and in colour sensibility. The improvement in visual acuity and near vision is shown in the following table:—

	Visual acuity. Both eyes.	Near vision.	
		Right eye.	Left eye.
Dec. 15th.	Before hypnosis, 5/60.	No. 15 Jaeger (badly).	Less than No. 15 Jaeger.
" 23rd.	After " 3/36.	No. 12 Jaeger	No. 15 Jaeger (badly).
" 26th.	Before " 1/6.	No. 6 "	No. 12 Jaeger
" 27th.	After " —	No. 4 "	No. 10 "
" 27th.	" 2/6.	No. 2 "	No. 10 "
" 28th.	No " 4/6.	No. 1 "	No. 4 "

¹ Colonel W. T. Lister, A.M.S., reports (Dec. 15th) that under homatropine and cocaine the refraction of the patient's eyes is as follows:

R.E.	+2.5	L.E.	-1?
	+2.5		0 or -0.5

He makes at the same time the following note on the fundi: "Right eye: Sector below disc is deficient in retinal pigment, so that the choroidal vessels are abnormally visible, but there is no pathological pigmentation and there are no areas of atrophy. Left eye: Internal crescent; vessels drawn to nasal side; and lack of retinal pigment on nasal side (nasal staphyloma). The atrophic appearance is more marked in this eye; even the choroidal pigment is deficient, giving a pale area. Maculae normal. Both discs pale, and there is connective tissue by the sides of the vessels. The whole condition, in my opinion, might be congenital."

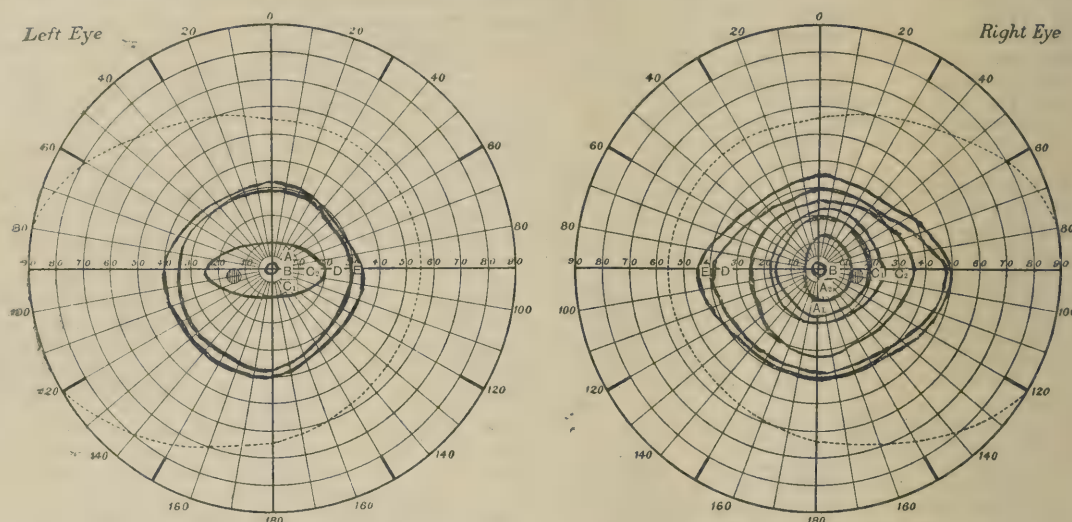
The improvement in visual fields is shown on the annexed Chart 1.² The "functional" character of this restriction of fields is shown by the fact that the patient was never observed to collide with objects when walking, and that he was able to box here when convalescent.

The improvement in colour sensibility was as follows:—
Dec. 14th: Half-inch square of colour recognised at 22 cm. R.E., 7.5 cm. L.E. Dec. 27th: 350 cm. R.E., 50 cm. L.E.
The sensibility of the eyes to red appeared to be keener than

a bit' when they got me out. I got up and then fell down, and it was all a 'wash out.'

Under hypnosis he confirms the above, adding that in his struggles in the trench he "said a prayer or two," and that when he fell asleep he thought himself in the R. Hotel at S., where he had lived for years and is well known. "I was listening to a young lady I know [not intimately] playing the piano. I saw Mr. S. [the landlord] and Mrs. S. The sleep and dreams kept coming and going. It was

CHART 1.



Perimeter charts from Case 2. A, Dec. 14th; A₁ at start, A₂ after testing other eye; B, Dec. 21st; C, Dec. 26th, C₁ before hypnosis, C₂ after hypnotic suggestion; D, Dec. 27th; E, Dec. 28th.

that to any other colour. Thus the red square was recognised at 100 cm. by the left eye on Dec. 27th, while other colours (yellow, blue, and green) could only be recognised at 50 cm. So, too, on Dec. 14th the visual field for the recognition of coloured squares was limited in both eyes to the fovea save in the case of red, the field for which in the right eye extended definitely, though slightly, beyond the fovea towards the nasal side of the retina.

The improvement in olfactory acuity is shown by the fact that on Dec. 27th he was able to smell and to recognise ether, peppermint, camphor, and turpentine, although still unable to smell carbolic acid (1:10), tincture of iodine, or methylated spirit.

The gradual restoration of memory occurred as follows:—
Dec. 22nd.—During hypnosis suggestions made evoked a description of how the ground fell in on him at the trenches. He says that he was buried up to the neck and that Sergeant L. dug him out. Men of the N. Regiment (not of his own regiment) took him to their dressing station, but the medical officer there "packed him off" to the dressing station of the M. (his own) Regiment. He can now remember Captain S. (attached to his regiment from the —) speaking to him and giving him a drink. He spoke to him when he reached the barn (the M.'s dressing station). While under hypnosis the patient is told that he will remember this when he awakes. He does so, but cannot explain why he had not been able to recall it before.

Dec. 23rd.—To-day, before hypnosis, he remembers another "big hospital" to which he was taken on leaving the barn—a "big square room with a stove in the centre"—opposite which he was placed. But he cannot recall how he got there, or how he left to come here by train. He cannot remember being carried on a stretcher until they took him out of the train at Etaples (the railway station for this hospital). He says that there was "no light" in the barn all the time he was there (24 hours). He remembers struggling in the trench "for hours" after he was buried. Finally he gave it up. "I went to sleep, and was enjoying myself at home when they started 'messing me about.' Someone fell on me and woke me up. I 'tumbled to things

dark when they dug me out. After I got out a chap said 'the fellow's mad,' and I said 'You're a liar.' Now, I remember a place between the barn and the hospital, rather a smart building, a long, low place. I was on a stretcher there. I must have got there by a horse ambulance, but I cannot remember this."

Dec. 26th.—Before hypnosis he recalls going to the clearing hospital (just mentioned) from the barn in a horse ambulance on a stretcher at midnight. He says: "I can remember talking to a major the next morning and having a sleeping draught at night. Then I went to another hospital at B. I had a ride in a motor ambulance on a stretcher, but whether this was from or to that hospital I cannot remember. I remember the journey in the train here distinctly. There were continual offers of tea, cocoa, sweets, and cigarettes. They wouldn't let us sleep for these things. I had a bad headache all the way down from the trenches. I did not bother much about my sight, as I thought it was imaginary. It wasn't until I got rid of the pain in my stomach which I came in with that I began to find my sight wouldn't let me read."

Dec. 27th.—While in hypnosis he gives the name of the man in the same trench with him as K. He "sees" very clearly the position of the trenches, their shallowness and covering. He remembers that he had been two days in the reserve trenches before he was sent on Dec. 7th to the firing line. He says, "The explosion lifted us up and dropped us again. It seemed as if the ground underneath had been taken away. I was lying on my side, resting on my hand, when the shell came. I got my right hand loose, but my left was fixed behind a piece of fallen timber. At last I dropped off to sleep and had funny dreams of things at home. One dream in particular I have thought over many times since. I haven't been able to make out why I should dream of the young lady playing the piano. I don't know her name and don't think I have seen her above twice."

Dec. 29th.—Before hypnosis he says that he can now "see" the N.'s dressing station—a one-storeyed house with two non-communicating rooms. He was taken first into the left-hand room, and later into the other in which the medical officer sat. No further information obtainable under hypnosis. He cannot recall how he got to the N. dressing station from the trenches.

² My thanks are due to Colonel Lister, A.M.S., who, by presenting the hospital with a portable perimeter and test types, made these observations now possible.

To recover the memory of this period other methods, in addition to hypnosis, were vainly tried. His dreams were generally of incidents belonging to earlier periods of the war, never of the trench-shelling. Attempts to obtain revival of the lost memories by getting him (a) to concentrate his attention on the scene of the shell bursting or of the N. dressing station, or (b) to record his thoughts when in a state of reverie, were fruitless.

How far the patient's memory, so far as it returned, can be trusted is not altogether certain. A man of the same regiment happened to be warded here at the time. He believes that the patient could not have remained in the trench for longer than an hour after the shell had burst. He declares that he saw him get out of the trench and report himself sick to Corporal R., and that he heard Corporal R. tell the patient to go off on foot to the M. dressing station. Until the day after the patient's arrival at the barn he never saw the patient again, when he was brought in himself there. He says that the doctors at the barn considered the patient "off his head." He does not believe that the N. Regiment was anywhere in the neighbourhood. He says that the man K. had been mortally hit some days before.

On further examination the patient says he has no recollection of reporting himself to Corporal R. or of meeting his fellow patient while at the barn, and he is quite certain that *somehow* he reached the N.'s dressing station before he got to his own.

On the other hand, another fellow patient here happened to belong to the N. Regiment and was able to confirm the patient's account by stating that the trenches of the N. Regiment were on that day

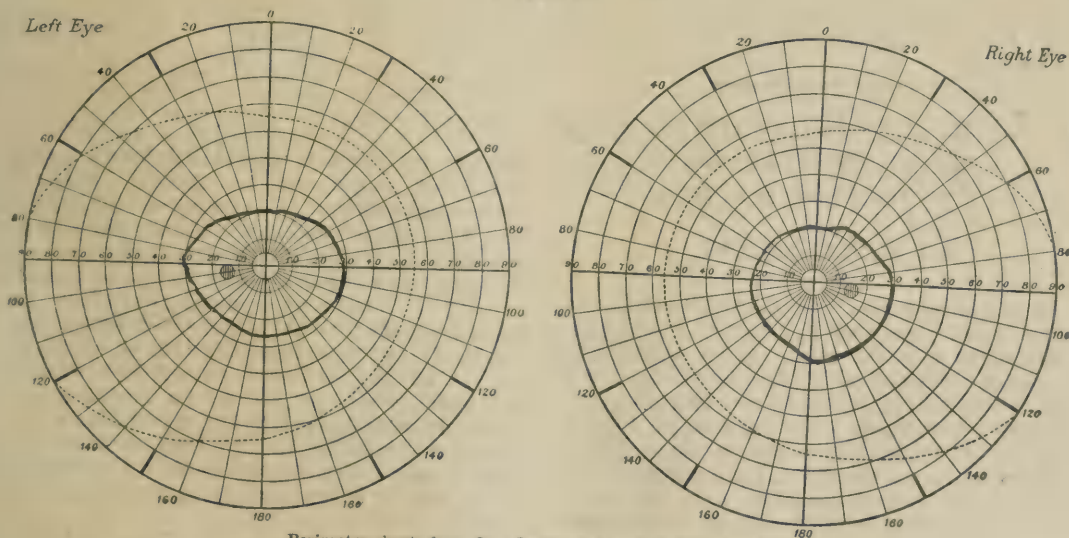
and was then brought, as he avers, to the dressing station by men of the N. Regiment. But of this last point the patient is not now so certain. He still insists that a man stepped into his fallen trench on top of him.

On Dec. 30th the patient was transferred to England for further treatment, and on the 31st he was admitted to the London Temperance Hospital under the care of Mr. J. S. Hosford, whence he has, I understand, now been discharged.

CASE 3.—Private, aged 23. Admitted on Jan. 26th, 1915. The patient says that he was blown off a heap of bricks 15 feet high owing to a shell bursting close to him. Thinks he must have fallen into a pool of water, as he next remembers finding himself, about 3 P.M. the same afternoon, in a cellar near a church with his clothes drenched. He does not know how he got there or how he left the cellar, but he remembers being in another hospital before he was admitted here. He cannot say if anyone was in the cellar with him. He remembers someone in the train talking to him and reminding him of being in the cellar.

Present condition.—Jan. 27th.—A healthy-looking man, well-nourished, but obviously in an extremely nervous condition. He complains that the slightest noise makes him start. His legs feel weak, and he has pain in the precordial region. His *sight has been very much impaired* since the shock. Distant vision, he says, is affected, and objects and type become blurred when long looked at. He has slept very little the last two nights. Heart, lungs, and joints appear normal. Abdomen, general spasm of muscles of wall on being touched. Hands tremulous. Knee-jerks normal, but the first attempts to evoke them provoked a spasm of the calf muscles and a few general convulsive movements as the patient lay in bed. His hands became very tremulous and his forehead sweated profusely. He appeared as if about to faint, and says that he felt cold and dizzy, and experienced "round and round movements of the stomach." The slightest touch on the

CHART 2.



Perimeter charts from Case 3, showing contraction of fields.

immediately next to those of the M. Regiment, and that the N. and M. dressing stations were situated in the same village, the former in a cottage about three-quarters of a mile beyond the latter, so that one would have to pass the M. dressing station on the way from the trenches to the N. dressing station.

There is hence a possibility that the patient wandered in a state of somnambulism from the trench past his own dressing station to that of the N.'s or that he wandered first into the N. trenches

legs provoked well-marked spasm of the quadriceps muscles of the same thigh. Plantar reflexes not obtainable. Extensor muscles of the toes appeared to be in a state of tonic contraction.

Jan. 30th.—Slept well last night for the first time. Bowels not opened for five days since the shock. Took an aperient last night and this morning; bowels open to-day. Eyes: Fundi normal. Fields, distinctly contracted, as in Chart 2. Near vision, either eye, No. 14 Jaeger; less for short words. Visual acuity (investigated by Colonel Lister, A.M.S.)—at first 6/24, but improved by encouragement and the indiscriminate use of weak + or - lenses to nearly 6/6.

Smell: Has complained until to-day of a *subjective sensation* of the odour of cordite. This has left him "since the bowels were open." *Left nostril fails to detect* smell of ether, peppermint, eucalyptus, ammonia, carbolic acid, or iodine tincture, all of which, save the last, are at once recognised when placed beneath the right nostril. No signs of nasal obstruction. *Taste*: Only tastes very strong solutions of sugar, salt, and acid, and then only when the tongue has been withdrawn and moved about the mouth; the taste is described as "faint."

Feb. 1st.—He complains that he gets very excited when anyone addresses him. He still fails to remember how he got to the cellar, but he now remembers someone there asking him his name and regiment. He says: "When I got into the hospital before I came to this one I can now remember being put against a wall and then being taken into a small room to see the doctor, who gave me a ticket and told me I was suffering from concussion. I think I must have gone to sleep after this, as I don't remember anything else until I was in the train. There a Royal Army Medical Corps bearer brought me a German prisoner to talk to. He was in the Bavarian Guard and had just seen his first action."

[Patient is still under treatment.]

Comment on these cases seems superfluous. They appear to constitute a definite class among others arising from the effects of shell-shock. The shells in question appear to have burst with considerable noise, scattering much dust, but this was not attended by the production of odour. It is therefore difficult to understand why hearing should be (practically) unaffected, and the dissociated "complex" be confined to the senses of sight, smell, and taste (and to memory). The close relation of these cases to those of "hysteria" appears fairly certain.

I have to thank Captain W. P. S. Branson and Captain H. Pritchard, R.A.M.C., in whose wards these patients were placed, for permission to make these investigations, and Major Gordon Watson, R.A.M.C., Commandant, for permission to publish them.

THE PSEUDO-LÆVULOSE OF DIABETIC AND OTHER URINES.

By P. J. CAMMIDGE, M.D. LOND.,

AND

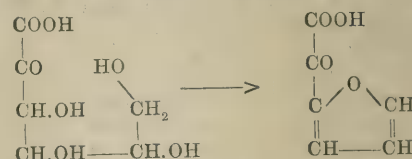
H. A. H. HOWARD, B.Sc.

In a previous paper¹ we pointed out that the lævulose usually met with in urine, unlike the lævorotatory sugar of plant origin, is precipitated from acid solutions by basic lead acetate, resembling in this respect glucuronic acid. This observation appears to have been first made by Külz, who published in 1890 a paper² giving the result of his analyses of the so-called urinary lævulose. Like plant lævulose, this substance reduces copper and bismuth in alkaline solutions, is lævorotatory, and is fermented with brewer's yeast. Külz also found that with phenylhydrazine it gave an osazone which in appearance, melting point (205° C.), and on analysis corresponded to dextrosazone. According to his analysis it has a formula $n\text{CH}_2\text{O}$. Unlike plant lævulose, however, it could not be obtained in a crystalline form, but was only secured as a syrup. The rate at which it reduced copper solutions, its rapidity of fermentation, and its specific rotatory power, but above all the ease with which it was precipitated by hydrates of the heavy metals, further suggested that urinary

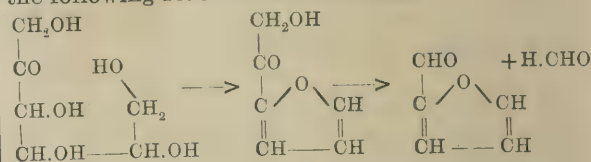
and plant lævulose were not identical substances. Other workers have since published similar results, but no attempt appears to have been made to establish the exact nature of the substance.

In diagnosing lævulosuria reliance has been placed upon a generally positive reaction with Seliwanow's test and the different readings obtained by reduction and the polarimeter. Borchardt, using a modification of Seliwanow's test, has claimed that lævulose does not occur in the urine, and that previous statements to the contrary were due to want of care in testing for it. In his modification the urine is treated with hydrochloric acid and resorcin, made alkaline with sodium carbonate, and then extracted with ethyl acetate. On carrying out this test with a solution of plant lævulose the ethyl acetate extract is coloured red, but with urines giving the ordinary Seliwanow reaction the watery solution retains the pigment and the extract is yellow.

These results obtained with Borchardt's test would be explained if, instead of lævulose, an acid with the constitution, $\text{CH}_2\text{OH}(\text{CH.OH})_3\text{CO.COOH}$ were present. The reaction would then be—



—and this derivative being a ketonic acid would dissolve in the sodium carbonate solution and not be extracted by the subsequent treatment with ethyl acetate. If, however, lævulose were present the following reactions would occur:—



—and the furfuryl derivative being non-acid in character would not be soluble in the sodium carbonate solution, and hence would be extracted by the ethyl acetate. Since the unmodified Seliwanow and Pinow reactions are readily obtained in a considerable number of cases, and in view of Borchardt's claim that true lævulose never occurs in the urine when tested for by his method, it seemed to us that the so-called lævulose might be the hitherto undescribed ketonic acid, of which we have just given the formula. This formula would explain its resemblance to glucuronic acid with respect to lead acetate, and would also admit of the formation of an insoluble calcium salt and a characteristic methylphenylhydrazine derivative.

In order to investigate these points and to establish the identity of the substance specimens were prepared by the following procedure:—

The urine was concentrated to a fifth of its volume and a saturated solution of lead acetate added, using one-tenth of the original volume of urine taken. The mixture was then heated on a water bath at 90° C., cooled, filtered, and the precipitate washed with water. The precipitate was suspended in 100 c.c. of a saturated solution of sodium sulphate and digested for two hours, when it was diluted to 500 c.c., filtered, and the filtrate tested for lead. When all the lead was found to have been removed the filtrate was mixed with 50 c.c. of saturated calcium chloride solution and 50 c.c. of lime water. After standing for two hours the precipitate that had formed was filtered off, well washed

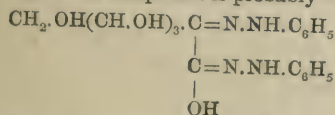
¹ THE LANCET, Sept. 26th, 1914, p. 791.

² Zeitschrift für Biologie, Band xxvii., p. 228, 1890.

with water, alcohol, and ether, and dried. The calcium content of the salt prepared in this way was determined in 6 cases with the following results: (i.) 9.4 per cent., (ii.) 9.5 per cent., (iii.) 9.2 per cent., (iv.) 9.3 per cent., (v.) 9.4 per cent., and (vi.) 9.6 per cent., an average of 9.4 per cent., which corresponds closely to the theoretical calcium content, 9.39 per cent., of a salt with the formula $(C_6H_7O_7)_2Ca$.

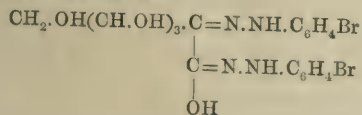
To separate the free acid from the calcium salt it was suspended in water and a stream of carbon dioxide gas passed through for two hours. The calcium carbonate precipitate was then filtered off, and the filtrate concentrated by evaporation *in vacuo* over sulphuric acid. A thick, yellowish, hygroscopic syrup, from which no crystals separated, even after several months, was obtained. It had a sweetish acid taste, was levorotatory, fermented with brewer's yeast, rapidly reduced alkaline solutions of copper and bismuth, and gave both Seliwanow's and Pinow's tests.

The phenylosazone and parabromphenylosazone were then prepared by the method of Maquenne, and the melting point determined on the "bloc Maquenne." The phenylosazone separated out as rather coarse yellow crystals arranged in sheaves. The purified product in all the cases examined had a melting point of 223° C., which is 7° lower than the melting point of dextrosazone and lævulosazone. The percentage of nitrogen in the osazone was determined in two cases by Dumas's method, giving in one instance 14.80 per cent. and in the other 14.99 per cent. These results suggest that the formula of the compound is probably—



—with a theoretical yield of 14.97 per cent. of nitrogen.

The parabromphenylosazone was obtained as fine yellow felted needle-like crystals. In 4 cases of simple "lævulosuria" it was found to have the following melting points: (i.) 196° C., (ii.) 197°, (iii.) 197°, and (iv.) 198°. While in 5 cases in which the substance had been isolated from the urine of diabetics in which dextrose was also present the following results were obtained: (i.) 198° C., (ii.) 197°, (iii.) 198°, (iv.) 198°, and (v.) 196°. The close correspondence of the melting points in diabetic and non-diabetic cases suggests that the levorotatory substance is the same in both. The percentage of nitrogen present in the parabromphenylosazone was determined in two of the cases, one yielding 10.56 per cent. and the other 10.40 per cent., results which correspond to the theoretical yield of 10.52 per cent. for an osazone with the formula—

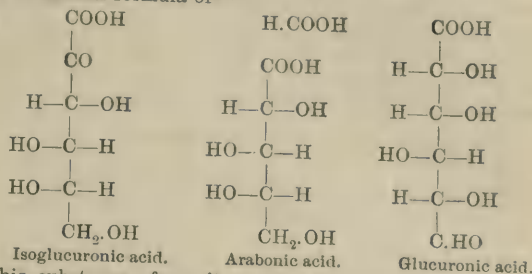


It will thus be seen that the melting point and nitrogen content of the phenylosazone and parabromphenylosazone do not correspond to the osazones formed by true lævulose, but that they point to the levorotatory substance which occurs in the urine, both in diabetic and non-diabetic cases, being a ketonic acid. To confirm this a study of its oxidation products was undertaken.

10 c.c. of the syrup prepared in the manner previously described were dissolved in 100 c.c. of water and heated with 20 gm. of lead peroxide and 10 gm. of sulphuric acid on a water bath for three hours. The mixture was then cooled and filtered. The filtrate was treated with barium carbonate until the acid was neutralised, then boiled and filtered. The filtrate was shaken with animal charcoal, filtered, concentrated to 50 c.c., and mixed with 100 c.c. of absolute alcohol. After standing for four hours the mixture was filtered. The precipitate was then washed with absolute alcohol, dried, and the barium content determined. 0.7428 gm. was found to give 0.3718 gm. of barium sulphate, corresponding to 29.46 per cent. of barium for the original compound. This yield corresponds, within the limit of experimental error, to the theoretical yield of 29.40 per cent. of barium for barium arabonate, $Ba(C_6H_7O_7)_2$, the

oxidation product produced by the action of lead peroxide on an acid of the formula, $CH_2.OH.(CH.OH)_3.CO.CO_2H$.

To confirm the presence of arabonic acid a portion of the salt was dissolved in water and the barium precipitated by carbon dioxide gas, the excess of which was subsequently removed by boiling. After filtering off the precipitate of barium carbonate, the solution was evaporated *in vacuo* over sulphuric acid. In five days white crystals appeared, and these were found to have a melting point of 97° C. corresponding to that of arabonolactone. These results pointed to a structural formula of—



This substance, from its analogy to glucuronic acid, we propose to name isoglucuronic acid.

In the course of our investigations we have examined specimens of urine from 30 cases of so-called lævulosuria and 50 of diabetes, in which a levorotatory substance was present along with the dextrose, but in none of them could any true lævulose be found, the levorotatory body in each instance being proved to be isoglucuronic acid. The data upon which a diagnosis of lævulosuria has been based in most of the published cases are such that the results obtained might equally well be explained by the presence of isoglucuronic acid, for the reduction of Fehling's solution, a positive Seliwanow's reaction, levorotation, these properties being abolished by previous fermentation with yeast, and the formation with phenylhydrazine of an osazone which has the melting point of glucosazone are characters shared by both bodies.

In some of the more recent cases reliance has been placed upon the formation of a crystalline calcium compound and the separation of a methylphenylhydrazine derivative with a melting point of 153° C.; but, as we have shown, isoglucuronic acid forms an insoluble compound with calcium, and we have found that with methylphenylhydrazine it yields an osazone which melts at 150° C. The difference between the two melting points is so slight that it cannot be relied upon as a means of differentiating the substances, especially as we have found that the melting point of methylphenyllævulosazone is not very sharp and is consequently difficult to determine with certainty. That this is the case is also suggested by the fact that melting points of 153° C.,³ 159° C.,⁴ and 158°–160° C.⁵ for the compound are given in recognised text-books. In support of our contention that isoglucuronic acid and lævulose are distinct substances, it may be mentioned further that a mixture of equal parts of the methylphenylosazones prepared under identical conditions has been found to melt at 120–130° C. on the "bloc Maquenne," whereas the osazone of lævulose melts at 162° C. and that of isoglucuronic acid at 155° C. The only published case in which it seems to have been conclusively proved that lævulose was present in the urine is that described by Otto Neubauer,⁶ for in this instance the sugar was isolated in a crystalline

³ Friedmann and Kempf: *Abderhalden's Handbuch der Biochemischen Arbeitsmethoden*, 1910, vol. iv., p. 1437.

⁴ Pincussohn: *Med-Chem. Lab-Hilfsbuch*, 1912, p. 359.

⁵ Neuberg and Strauss: Quoted by Schulz, *Neubauer-Huppert, Analyse des Harns*, 1910, p. 443.

⁶ *Münchener Medizinische Wochenschrift*, 1905, Band li., 1525.

form, which is impossible with isoglucuronic acid. Moreover, the crystals were found to be soluble in absolute alcohol, but were insoluble in a saturated alcoholic solution of lævulose.

While therefore true lævulosuria, or fructosuria, may be met with it is apparently a rare condition, and in the majority of cases it seems probable that the term is a misnomer, and that the lævrotatory reducing substance that occurs in the urine is in reality the ketonic acid, isoglucuronic acid, we have described. This is differentiated from lævulose by Borchardt's test, by being precipitated from an acid solution by saturation with lead acetate, and the melting point of the parabromphenylosazone.

DEATH FROM STRANGULATED INTERNAL HÆMORRHOIDS.

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INTERNAL hæmorrhoids are an extremely common complaint, but although they give rise to a considerable amount of discomfort and inconvenience, and even disability, it must be very rarely that they are the direct cause of death. Cases of death from embolism following thrombosis of varicose veins in the leg are not uncommon, but a fatal issue from thrombosis of veins in the rectum is, in our experience, a very rare event. It is obvious that the danger of embolism resulting from thrombosis of the rectal veins is not so serious as when the veins of the leg are involved, for whereas the latter veins drain direct into the general circulation, and consequently the detached portion of clot can reach the heart, in the case of thrombosis of the rectum the embolus is more likely to be in the liver, where it would not have such serious consequences.

A case is recorded in THE LANCET of Sept. 23rd, 1911, by Dr. David A. Alexander of portal pyæmia following thrombosed internal piles. This patient had all the symptoms of portal pyæmia—rigors, ascites, œdema of the legs and abdomen, and a high temperature. The patient was very seriously ill for a period of six months, after which he appeared to recover, only to have a relapse three months later, from which, however, he again recovered. The only cause for the portal pyæmia that could be found was a limited tract of thrombosis in the hæmorrhoidal veins.

The following case, which was under our care at St. Mark's Hospital, is evidently of a similar nature, but unfortunately ended fatally. Although we think there was portal pyæmia in this case it was not so marked as in Dr. Alexander's case. The patient died apparently from septicæmia, the result of extensive gangrene of the rectum and neighbouring tissues, but had he survived longer we have very little doubt that the typical abscesses in the liver would have been evident. The only treatment which would appear to have given the patient any chance of recovery was an early colotomy, which would have enabled the bowel to be kept clear of fæcal material. It was, however, obviously unjustifiable to perform colotomy for thrombosed veins in the rectum, and by the time it was obvious

that the whole of the rectum was gangrenous it was too late for this method to have had any chance of success, while the patient was certainly too ill to undergo any operation. The following are the notes of the case.

The patient, a man aged 43, was admitted to St. Mark's Hospital on Nov. 14th, 1914, for internal piles. He stated on admission that he had suffered from internal piles for about 25 years, and that of recent years the piles had prolapsed readily when he walked or on the least exertion, and that they had to be replaced. There had also been considerable bleeding at times. Within the last few years he had had "several attacks of piles," which had necessitated his remaining in bed for some days. The piles had evidently become strangulated during these "attacks," and he had been unable to replace them.

The patient was very much afraid of an operation, and he had put off coming to the hospital for a long time on this account. A severe attack of strangulation of the piles, which had occurred two days before his admission, had finally brought him to the hospital, and on admission he was suffering from strangulation of several large piles. He was very anæmic and seemed ill and in obvious pain. His skin was of a waxy colour; there was considerable puffiness beneath the eyes, and slight œdema of both feet. The lips and ends of the fingers showed a considerable degree of anæmia. There were a number of large varicose veins on the back of both thighs. The patient was very short of breath, apparently from anæmia. Examination of the chest showed slight œdema of both lungs. The heart was somewhat dilated and there was a well-marked hæmic bruit. His liver was slightly enlarged. Examination of the urine showed no albumin or sugar. Examination of the rectum showed a good deal of swelling round the anus and several large prolapsed hæmorrhoids, which were thrombosed and of a dark, bluish colour. Examination was very difficult as the parts were exceedingly tender. He was therefore examined under an anæsthetic, and it was then found that not only were the piles thrombosed, but that all the veins of the rectum appeared to be involved for some two inches up the bowel. The whole of the plexus of veins in the lower part of the rectum was thrombosed and swollen. It was quite impossible to do anything of an operative nature, or even to replace the piles.

The patient was sent back to bed and treated with hot fomentations, &c., to try to reduce the swelling. Instead of improving the condition became worse. Five days after admission there were signs of sloughing of the rectum, and an acute inflammatory swelling began to be evident behind the anus. This was incised, and a great deal of foul serum escaped. Two days later a swelling occurred on the left side of the anus and had to be incised. The whole of the rectum at this time was gangrenous for some four or five inches. The patient had lost all control; he was suffering from almost continuous diarrhœa and was very ill. The pulse-rate was 110, the temperature fluctuating between 99° and 101° F. He also began to complain of severe pain in the abdomen.

On the sixteenth day after admission a slough 1½ inches wide and 4½ inches long, which appeared to consist of all the coats of the rectum, came away. The whole of the buttocks and perineum at this time was œdematous and in a sloughing condition. Examination of the urine showed no albumin or pus. The patient was very seriously ill. During the third week the patient was very tender over the liver and complained frequently of abdominal pain. There were a number of large dilated veins on the abdominal wall and extensive œdema of the lower limbs. The temperature was still fluctuating, but there were no rigors. There was still severe diarrhœa in spite of all treatment. Two severe hæmorrhages occurred at the end of the third week, and the patient died two days later, apparently from septicæmia and general weakness.

Complete gangrene of all the coats of the rectum as the direct result of thrombosed internal piles seems to us a sufficiently rare condition to be worth recording. We are of the opinion that the condition was rendered possible by the secondary anæmia from which the patient was suffering.

A NOTE ON THE TREATMENT OF GUNSHOT WOUNDS OF THE FEMUR.

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A LITTLE time ago Mr. B. C. Maybury and myself devised a modification of Thomas's knee splint with the idea of producing powerful extension of the leg during the process of plating fractures of the femur or tibia. When the Red Cross Hospital at Netley was opened the difficulty of adequately treating compound fractures of the femur was soon apparent. The chief difficulty was in maintaining extension and at the same time providing for efficient dressing and (possibly more important) the comfort of the patient. It was determined to try this modified Thomas's splint. The result more than came up to expectations, and cases which arrived with bad wounds and suffering great pain during the process of dressing were soon put at their ease and improved rapidly. In addition to this, some cases which were admitted six weeks after the injury with 3 inches of shortening were soon restored to their normal, or nearly normal, length, and union in a good position resulted.

A short description of the splint (Fig. 1) may be of service to those in charge of other hospitals. The

FIG. 1.



The splint unapplied. Shows the method of obtaining extension by means of a pin. Note the wire fastened by rings to the pin and passing over the pulleys in the transverse bar that carries the footpiece. The traction screw is longer than is now used.

splint as made consists of the original Thomas's crotch ring with a lateral diameter of 9½ inches. The two side pieces are made of mild steel, are parallel, and 8 inches apart. Sliding on these parallel side pieces are two transverse bars. The upper one is fitted with an ordinary footpiece. The lower one is perforated to accommodate a large machine-cut screw. The top of the screw runs in a collar in the transverse footpiece.

The process of application is as follows. The ring is slipped over the foot and adjusted in the ordinary way, care being taken that the inner and back part of the ring gets a bearing on the tuber ischii. As the ring is rather large this is ensured by putting a pad on the outer side of the thigh. The foot is

then fastened to the footpiece by a stirrup extension or a leather anklet, or by webbing embedded in plaster put on over wool wrapped round foot and ankle. The limb is supported in the splint by the two parallel bars in the same way that is usual in the Hodgen splint. The lower transverse sliding piece is then fixed to the two parallel

bars by screws provided for the purpose, and extension applied to the limb by turning the traction screw. The end of the splint is either rested on sandbags or swung by a chain from a masthead or from the roof of the hut. (Fig. 2.) By

FIG. 2.



The splint applied to a fracture in the lower third of the femur. The splint is slung to the roof of the hut by a chain. Note the small pillow under the outer side of the ring. The man's face is expressive of his comfort.

this means the patient is free to move about in bed within reasonable limits, and the dressing of a posterior wound can be effected without discomfort to the patient by either raising the splint or turning him on one side, the constant steady pull of the screw preventing any undue shifting of the limb and consequent pain to the patient. If the limb tends to sag when the patient is turned on his side it can be prevented by loops of bandage fastened to the uppermost bar. (Fig. 4.)

In those cases in which it is impossible to apply the stirrup extension, either because of the state of the skin or from the presence of wounds in the leg, a pin can be driven through the lower end of the femur and the extension applied by a chain or thick picture wire, which runs from one end of the

FIG. 3.



The splint applied to a fracture in the middle of the femur. A pin has been driven through the bottom of the shaft of the bone and extension produced by a chain. The man's foot had been injured by a bullet, so that a strapping extension could not be applied.

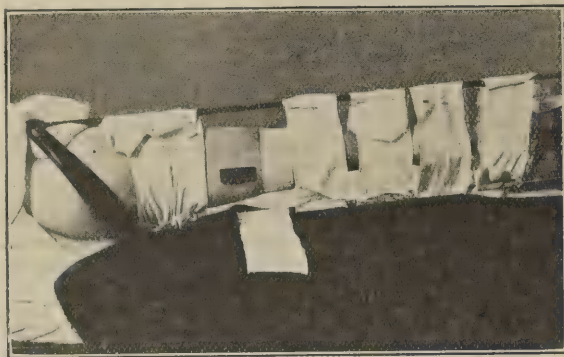
pin down to the transverse footpiece over two pulleys let into this, and up again to the opposite end of the pin. The use of the pulleys is to allow

the strain on either side of the limb to be equal, which it is difficult to ensure if the ends of the pin are fastened to the corresponding ends of the transverse footpiece. (Figs. 1 and 3.)

The distance between the parallel bars ensures the easy application of the dressing, and also enables an operation to be performed while the limb lies stretched in the splint. If relaxation is required this can be obtained by reversing the foot screw, and then when extension is required to get the ends in position the screw can again be tightened. The essential part of the splint is the screw, and no other method which has been tried produces a like amount of extension with so little discomfort to the patient.

This splint has been made by Messrs. Allen and Hanbury, of Wigmore-street, London, W. The cost is somewhat heavy, but I do not think it is out of proportion when the results obtained by the splint are considered. In addition, the expenditure is a capital one, and when a number of splints are in hand they can be passed from one

FIG. 4.



Shows the patient turned on his side for dressing a posterior wound (represented by a black piece of paper). Note the small cushion under the junction of the side bar and crotch ring. The limb is kept from sagging by means of loops of bandage passing round the limb and fastened to the upper side bar. They cannot be seen as they are hidden by the slings.

case to another, and even sent across the water to accommodate other people in their transit to this country. A man once in this splint can be moved with very little discomfort, and constant extension of the limb is maintained in spite of the inevitable movement from bed to stretcher which the wounded have to undertake in the process of removal to the base. If one type of splint is to be used for all cases, which can well be done, it is necessary to have the side bars 54 inches long in order to take the limb of a 75-inch man. A 66-inch man wants side bars 43 inches long. There is no disadvantage in having the long splint except that it sticks over the end of the bed. I am, however, having some splints made so that side bars of different lengths can be screwed into the crotch ring. This arrangement has the advantage that the splint can be packed flat. It would also be possible to have one traction-screw attachment for many splints if the transverse foot bar was provided with fastening thumb-screws.

A number of these splints have been provided by the British Red Cross Society and are now in use at this hospital.

The British Red Cross Hospital, Netley.

TYPHOID AND PARATYPHOID INFECTION IN RELATION TO ANTITYPHOID INOCULATION,

TOGETHER WITH REMARKS ON THE IMPORTANCE OF THE USE OF PROPHYLACTIC PARATYPHOID INOCULATION.¹

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At the present time when the prophylactic value of antityphoid inoculation has been fully recognised by the authorities, but is still vehemently opposed in certain quarters, it may prove not only of interest, but perhaps also of considerable value, to record briefly the results of observations made on patients in the Base Hospital at Oxford.

In the light of these observations we wish to emphasise, firstly, the extreme importance of classifying *all* cases returned as cases of "enteric" fever in accordance with the results of detailed bacteriological examination, particularly as regards the precise and careful differentiation between *B. typhosus* and *B. paratyphosus*. For if this be not done a large number of cases of paratyphoid fever are likely to be returned as cases of "enteric." The consequence will be that the statistics regarding the protective value of antityphoid inoculation will become seriously vitiated.

Secondly, we wish to urge again the importance of making prophylactic inoculations against certain other bacterial infections, some of which have already appeared during the war. And on the present occasion we refer particularly to paratyphoid infections, which seem to be occurring with considerable frequency, both in inoculated (antityphoid) and uninoculated individuals. The prophylactic paratyphoid inoculation suggested can readily be effected simultaneously with the antityphoid inoculation by using a mixed vaccine, and, so far as the evidence goes, this procedure does not lead to any notable increase in the severity of the reaction produced.

The Diagnosis.

The agglutination test is the quickest method of diagnosis. Blood cultures and cultures from the urine and faeces will usually enable the observer to isolate the micro-organism where opportunity exists for carrying out repeated examinations. But under war conditions the agglutination method is the one on which reliance must be placed. Accurate differential diagnosis, however, can only be obtained by routine testing of the serum of the patient against the three micro-organisms, *B. typhosus* and *B. paratyphosus* (A) and (B), in parallel series of observations, and by always determining the *maximum* dilution of the serum in which agglutination takes place. Individuals who have been inoculated with antityphoid vaccine within a period of some months or even years will give a high agglutination titre against

¹ The expenses of this work have been defrayed out of a grant received from the National Medical Research Committee.

B. typhosus. Whether they are suffering from active typhoid infection or not can only be determined by repeating the agglutination test at intervals in order to ascertain whether the titre of agglutination shows marked changes or remains practically constant. Such changes are in any case of greater importance in the diagnosis than is the absolute degree of agglutination. They can only be detected with certainty by making use of a standard culture of killed typhoid bacilli and employing the macroscopic method of determination, which is both simpler and more reliable than the microscopic.

A standard culture is readily prepared by the method previously described by one of us (G. D.).

The bacillus (*B. typhosus*, *B. paratyphosus*, &c.) is grown for 24 hours at 37° C. in large flasks in a peptone veal bouillon which has been sterilised in the autoclave at 115° C. for not more than 15 minutes. The culture must be made from a young bouillon culture of a typhoid bacillus which has been subcultivated daily in bouillon, preferably throughout several weeks. At the end of 24 hours the flasks are well shaken and 0.1 per cent. of commercial (40 per cent.) formalin is added. They are again shaken and placed in cold store at about 2° C. At intervals on the same day and on subsequent days for four or five days the flasks are again thoroughly shaken in the cold store. After three or four days they will always be found to be absolutely sterile. The bacterial suspension is subsequently diluted with sterile normal saline solution (containing 0.1 per cent. of formalin) to a standard opacity. Should it happen that the suspension is not entirely homogeneous it is filtered through sterile cotton wool and bottled for use in sterile vessels, either sealed or corked.

The standard culture has the following advantages: (1) It is sterile; (2) it is as sensitive to agglutination as the fresh culture, or even more so; (3) it keeps unchanged almost indefinitely if stored in a cool and dark place; and (4) it renders all observations strictly comparable. For the present purpose the agglutination test is made with the patient's serum against *B. typhosus*, *B. paratyphosus* (A), and *B. paratyphosus* (B) simultaneously in parallel experiments.

Method.—Place 15 small narrow sedimentation tubes in a stand in three rows of 5 each. With a proper dropping pipette measure out into a test-tube 54 drops of tap-water. Dry out the pipette and with it add 6 drops of the serum to be examined, giving a dilution of 1 in 10. Wash out the pipette carefully.

In tube 1 of each row place 0 drops of tap-water.

"	2	"	5	"
"	3	"	8	"
"	4	"	9	"
"	5	"	10	"

Dry the pipette and use it to add—

To tube 1 in each row 10 drops of the serum dilution (1/10).

"	2	"	5	"
"	3	"	2	"
"	4	"	1	"
"	5	"	0	"

Wash the pipette carefully, and then add to each tube in row 1 15 drops of standard *B. typhosus* suspension, to each tube in row 2 15 drops of standard *B. paratyphosus* (B), and to each tube in row 3 15 drops of standard *B. paratyphosus* (A). Shake each tube thoroughly in order from right to left (beginning with the weakest dilution). Place in the water bath at 55° C.

In tube 1 the serum acts in a dilution of 1 in 25.

"	2	"	"	"	1 in 50.
"	3	"	"	"	1 in 125.
"	4	"	"	"	1 in 250.

Tube 5 without serum is the control against spontaneous agglutination.

Higher dilutions are followed out in a similar manner, if the limit of agglutination is not reached within the first series. In inoculated persons who have not had typhoid (or paratyphoid) fever agglutination in a dilution of 1 in 25 justifies

a strong suspicion of typhoid (or paratyphoid) infection. But in such a case the test must be repeated in the course of a day or two. Marked agglutination in a dilution of 1 in 50 or more is nearly always diagnostic of active typhoid (or paratyphoid) infection.

The reaction is completed in about two hours if the tubes containing the dilutions are maintained at a temperature of 55° C. in a water bath (50–55° C.) If left at the room temperature 24 hours must be allowed. Obviously the former procedure is to be preferred.

Inoculated persons may give a very high agglutinating titre, as may be seen in Table I. It is therefore necessary to explain briefly the character of the agglutination curve, and the manner in which the results of successive examinations of the serum are to be interpreted.

In the chart the main curve (broken line) shows the course of agglutination in an actual case of typhoid fever. It is indistinguishable in form from the curve obtained by an experimental inoculation with antityphoid vaccine, though its maximum is lower and its decline more rapid than is usual in the inoculated subject. In the same diagram are given observations on three different patients carried out by the method just described. They illustrate some of the chief points which we wish to bring out.

(α T) exhibits the high agglutination titre (1 in 1500) against *B. typhosus* of the serum of an individual inoculated in September, 1914. It shows no change in three successive observations in the course of six days. During the same period the paratyphoid (B) agglutination (α B) rises rapidly from 1 in 300 to 1 in 700. The agglutination of paratyphoid (A) (α A) is *nil*. Clearly the case is one of paratyphoid (B) infection at an early stage.

(β T) again shows the high and steady typhoid agglutination titre (1 in 1250) of an individual inoculated in August, 1914. Paratyphoid (B) agglutination (β B) during the same period undergoes a striking fall. Paratyphoid (A) agglutination (β A) is *nil*. Again a case of paratyphoid (B) infection.

(γ T) exhibits the steady but now lower typhoid agglutination titre (1 in 250) of an individual inoculated in India as long ago as 1908. His paratyphoid (A) (γ A) and (B) (γ B) agglutination are both *nil*. The patient had neither typhoid fever nor paratyphoid fever.

Apart from the cases of infection occurring in inoculated individuals in which both typhoid and paratyphoid bacilli are agglutinated, other cases occur in the *non-inoculated* where more than one micro-organism is agglutinated by the patient's serum. Here, also, it is necessary to determine the maximum dilution in which each organism is agglutinated, and to follow the agglutination curves in a series of successive observations.

The following statements will afford a sufficient guide in such cases. They are the result of extended general experience, and space does not allow us to present on this occasion the evidence upon which they are based.

1. That bacillus which exhibits the greatest agglutinability (highest agglutination titre) is the infective agent (or the principal infective agent) in the case under examination.

2. If the case is one in which the agglutination of a second micro-organism is due to the presence of *co-agglutinins* the curve of co-agglutination will be found to run parallel to the curve of principal agglutination, but at a lower level.

3. If the case is one of mixed infection with two different organisms their respective curves of agglutination are not parallel, but exhibit totally independent courses, which may even cross one another.

Results.

The results of observations carried out on patients in the Base Hospital at Oxford may now briefly be recapitulated. Table I. gives all necessary details.

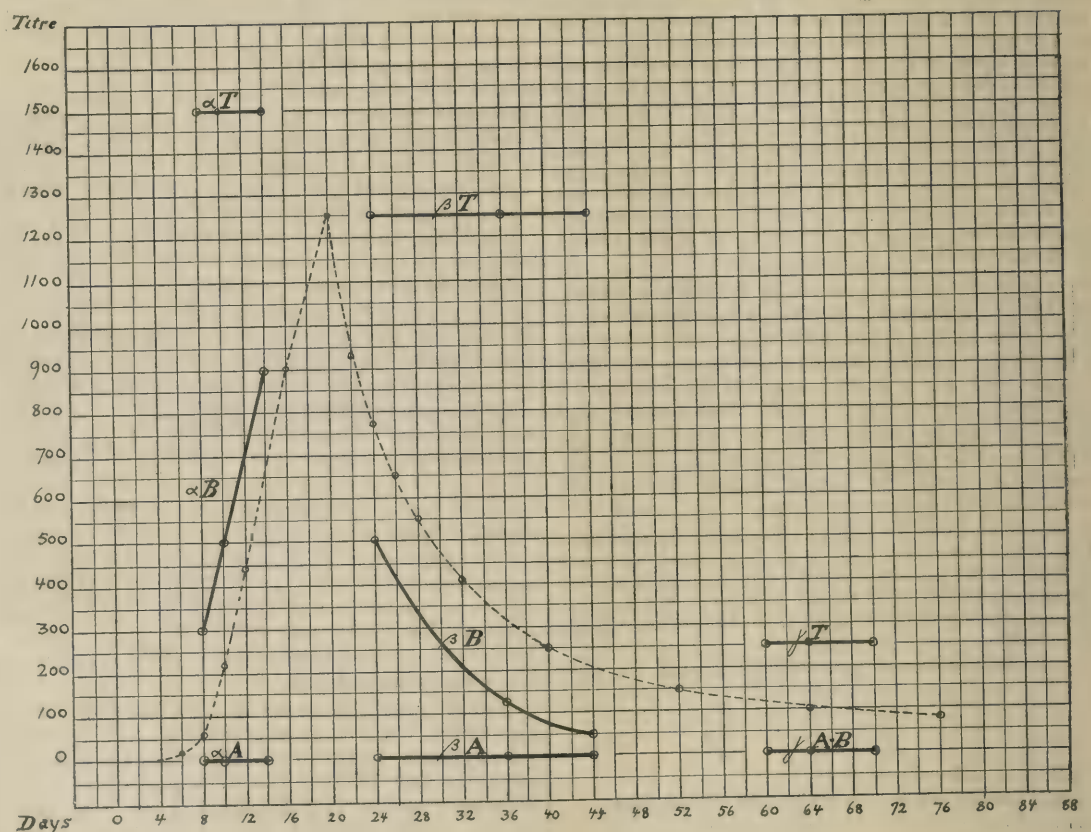
Table I. contains all those cases out of the large number examined in course of ordinary routine which yielded positive results in agglutination tests. It will be seen that of these 20 cases suffering from continued fever 8 were diagnosed bacteriologically as typhoid fever and 6 as paratyphoid fever, while the remaining 6 were neither typhoid nor paratyphoid fever.

whether these are merely variants of *B. paratyphosus* (B), or whether the one type is in reality *B. paratyphosus* (A), the other being certainly *B. paratyphosus* (B), has not yet been finally determined. The two individuals had never been in contact before the present illness.

The following are the points of chief importance from the table:—

1. No case of typhoid fever has been found among (antityphoid) inoculated individuals.
2. Of six cases of paratyphoid infection three occurred in (antityphoid) inoculated subjects. Had these cases been returned as cases of "enteric" fever the value of antityphoid inoculation as here exhibited would have been greatly diminished.
3. So far as this limited series of cases goes paratyphoid fever has occurred with equal frequency among (antityphoid) inoculated and non-inoculated individuals. This is in agreement with the finding

CHART SHOWING COURSE OF AGGLUTINATION.



Of the cases of paratyphoid fever one (Case 41), though not inoculated and denying that he had ever had typhoid fever, showed a steady typhoid agglutination of 1 in 1250. Up to the present it has not been possible to isolate the *B. typhosus* either from the urine or faeces of this patient. And we do not know yet whether he is a typhoid carrier or has recently passed through a mild unrecognised typhoid infection followed by infection with *B. paratyphosus* (B).

Cases 62 and 68 in the table are of special interest. Both individuals were inoculated against typhoid fever last autumn. Both have been in France, but never in any other foreign country so far as can be ascertained. In each case the serum strongly agglutinates both *B. paratyphosus* (B) and *B. paratyphosus* (A). The cases are either very striking examples of co-agglutination, or else, as is more probable, they constitute examples of mixed infection. From the faeces in each case paratyphoid bacilli (but no typhoid bacilli) have been isolated. In each case also two distinct types of paratyphoid bacilli are present. But

of Kabeshima and others in long series of observations that antityphoid inoculation affords no appreciable protection against paratyphoid infection.

4. In no case other than cases of active paratyphoid infection has the serum of the patient agglutinated *B. paratyphosus* (B) or (A) in a dilution of 1 in 25, even when the titre of typhoid agglutination was very high. This statement holds good both for (antityphoid) inoculated individuals and for non-inoculated persons suffering from typhoid fever.

5. The typhoid agglutination found in convalescents from typhoid fever is easily distinguishable from that of inoculated individuals. First, it is (with very rare exceptions) of low titre as contrasted with that of persons recently inoculated, whose typhoid agglutination titre remains high

(see table). Secondly, it will always show a definite and measurable diminution of titre in the course of a week or two, while in (antityphoid) inoculated individuals whose titre has by lapse of time fallen to a similarly low level no measurable change will be found within the same period.

Prophylactic Paratyphoid Inoculation.

Paratyphoid vaccines have been studied by Castellani, Cummins and Cumming, Kabeshima and others. This is not the occasion on which to enter into any detailed discussion of their results. But the recent work of Kabeshima affords full evidence, both from animal experiment and from extended observations carried out on the personnel of the Imperial Japanese Navy, of the great protective value as well as the innocuous character of the paratyphoid inoculation. Kabeshima used a mixed vaccine containing equal numbers of

In view of these results it is unnecessary to adduce further evidence of the fact that by the use of a suitable mixed vaccine adequate protection can be obtained against *B. typhosus*, *B. paratyphosus* (A), and *B. paratyphosus* (B).

As regards the reaction produced, Kabeshima states that when the vaccine used is made up of equal quantities of the three micro-organisms concerned, so that the total number of bacilli in the dose does not exceed the usual number present in a dose of antityphoid vaccine, the severity of the reaction (both local and general) is not significantly greater than that following ordinary antityphoid vaccination. Should the question arise as to whether it is better to employ a mixed vaccine of this character or to carry out immunisation against each separate micro-organism separately, it may be stated that the former method is preferable. Obviously it saves time, and it avoids the fre-

TABLE I.—Results in Agglutination Tests.

Case number.	Clinical diagnosis.	Typhoid agglutination.			Paratyphoid (B) agglutination.			Paratyphoid (A) agglutination.			Antityphoid inoculation.		Bacteriological diagnosis as regards typhoid and paratyphoid infection.
		First examination.	Second examination.	Third examination.	First examination.	Second examination.	Third examination.	First examination.	Second examination.	Third examination.	Whether inoculated.	Date of inoculation.	
5	Typhoid.	>1/250	—	—	0	—	—	0	—	—	0	—	<i>B. typhosus</i> .
8	? Enteric.	>1/500	—	—	0	—	—	0	—	—	0	—	
15	Typhoid.	>1/500	—	—	0	—	—	0	—	—	0	—	
20	? Enteric.	>1/500	—	—	0	—	—	0	—	—	0	—	
24	?	>1/500	—	—	0	—	—	0	—	—	0	—	
37	?	>1/500	—	—	0	—	—	0	—	—	0	—	<i>B. paratyphosus</i> (B).
48	Enteric.	>1/500	—	—	0	—	—	0	—	—	0	—	
57	?	>1/500	—	—	0	—	—	0	—	—	0	—	
10	?	0	—	—	>1/500	—	—	0	—	—	0	—	
21	? Enteric.	0	—	—	>1/250	1/125	—	0	—	—	0	—	
41	?	1/1,250	1/1,250	—	1/5,000	1/2,500	—	0	—	—	0	—	" "
42	?	1/1,250	1/1,250	1/1250	1/500	1/125	1/50	0	—	—	+	Aug., 1911, Aug., 1914.	
62	?	1/12,500	1/12,500	—	1/5,000	1/12,500	—	1/2,500	1/5,000	—	+	Sept., 1914.	
68	? Enteric.	1/2,500	1/2,500	—	1/12,500	1/25,000	—	1/12,500	? 1/25,000	—	+	Oct., 1914.	
49	? Enteric.	1/2,500	1/2,500	—	0	0	—	0	0	—	+	Aug., 1914.	
51	? Enteric.	1/5,000	1/5,000	1/5000	0	0	0	0	0	0	+	Sept., 1914.	* <i>B. paratyphosus</i> (B) and (A).
52	? Dysentery.	1/1,250	1/1,250	—	0	0	—	0	0	—	+	1902, 1904.	* <i>B. paratyphosus</i> (B) and (A).
53	?	1/2,500	1/2,500	—	0	0	—	0	0	—	+	Sept., 1914.	Not typhoid or paratyphoid.
58	? Dysentery.	1/250	1/250	1/250	0	0	0	0	0	0	+	Oct., 1914.	" "
61	?	1/1,250	1/1,250	—	0	0	—	0	0	—	+	1908.	" "
												Oct., 1914.	" "

■ In these two cases, which are quite recent, it is still uncertain whether the agglutination observed is due to the presence of co-agglutinins or the result of a mixed infection with *B. paratyphosus* (B) and (A).

typhoid, paratyphoid (A), and paratyphoid (B) bacilli. About 12,000 men have been inoculated with the mixed vaccine. The following table from Kabeshima shows the results recorded in five naval hospitals in Japan during the period 1909–1911 after the introduction of inoculation with the mixed vaccine:—

TABLE II.—Kabeshima's Results.

Disease.	Total numbers of cases.	Cases in inoculated subjects.		Cases in non-inoculated subjects.	
		Sick.	Dead.	Sick.	Dead.
Typhoid ...	367	68	5	299	40
Paratyphoid (A)...	289	71	2	218	5
Paratyphoid (B)...	447	0	0	447	0

quent repetition of periods of brief temporary disability. Moreover, there is ample evidence from observations of Jörgensen, Schroeder, Dreyer, and others that in successive immunisation with these micro-organisms the immunity evoked against those organisms which are injected later in the series is less than the immunity obtained when they are mixed together and injected simultaneously, unless a considerable interval is allowed to elapse between the inoculations. And this result is independent of the order in which the different micro-organisms are employed.

Conclusions.

1. It is of the utmost importance that our troops should be protected against paratyphoid infection as well as against the *B. typhosus*. This can readily be done by the use of a mixed vaccine

containing equal quantities of *B. typhosus*, *B. paratyphosus* (B), and *B. paratyphosus* (A). Men already inoculated against *B. typhosus* should also be inoculated against paratyphoid infection, since the antityphoid inoculation offers no appreciable protection against paratyphoid bacilli. The epidemics of typhoid fever reported to be occurring among the belligerents (who are all known to practise antityphoid inoculation) are probably to an important extent epidemics of paratyphoid.

2. Unless all cases of "enteric" fever are properly differentiated into typhoid and paratyphoid infection the statistics regarding the value of antityphoid inoculation among our forces in the present war will be most seriously vitiated. It is probable that the absence of accurate bacteriological diagnosis in the past explains the fact that the statistical results arrived at in our army have not always been so convincing as would otherwise have been the case.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

Cerebral Degeneration associated with Macular Changes.—Exhibition of Cases and of a Trench Periscope.

A MEETING of this section was held on Feb. 3rd, Mr. PRIESTLEY SMITH, the President, being in the chair.

Dr. F. E. BATTEN and Mr. STEPHEN MAYOU contributed a paper on Cerebral Degeneration associated with Macular Changes, and gave a pathological description of a case. Dr. Batten said that in these cases a curious pigmentation occurred at the macula, and usually also around it, and considerable optic atrophy was also present. Several of the examples of the condition which had been under his care died at Darenth Asylum. He exhibited the pedigrees of two families. In one case the changes in the macula were the last occurrences in the march of degeneration. The brains of these patients did not present any macroscopic abnormality, and they had the usual convolutional pattern, as well as the normal weight and relationship to the cerebellum. The brain and nervous system were examined by several staining methods. There was found to be some degeneration in the medullated fibres; in the cerebellum the myelene was breaking down and degeneration was present in the cells of Purkinje. The most profound change was in the Betz cells; instead of the Nissl granules there was a curious accumulation of fine granules around the nucleus. In the cerebellum were large granular cells not normally seen, and he could not say what their significance was. The most marked change was found in the child who had had the disease longest—namely, for three and a half years. There were marked changes in the fundus, a shrinking of the convolutions, and in some cases the Betz cells were too degenerated to show the vacuolation. This group was similar to the Waren Tay-Sachs cases of amaurotic family idiocy, but occurring at a later age and not race-selective. The disease now described was characterised by progressive blindness, progressive paralysis, and progressive dementia, but changes in the macula were not always present. Mr. Mayou dealt with the pathology of the eye condition. The child he examined had evidently lost all perception of light, but that was not so in all the cases. Immediately after death the eyes were injected and stained. The changes were

confined to the retina, but varied enormously in different parts of the fundus. The principal change was round the macula region. The internal nuclear layers had disappeared altogether, also the rods and cones, and there was some migration of pigment from the retinal pigment cells.—The paper was discussed by Mr. J. H. PARSONS and Mr. TREACHER COLLINS, and Dr. BATTEN and Mr. MAYOU replied.

Mr. A. BERNARD CRIDLAND showed a case of Glass-workers' Cataract in an iron-smelter ("puddler"). He brought the case forward to give an opportunity for the discussion of the type of case in ironworkers in relation to industrial diseases, as these men were not included in the schedule. Considering the number of hours of exposure to the glare of the molten metal, his surprise was that there were not more cases, especially as these men rarely wore protective goggles. He suggested that a more inclusive term should be applied to the cases of cataract so caused, such as "ray cataract."—Mr. C. B. GOULDEN said he had a case now under care in a welder, and he thought an investigation would disclose that the condition was more common among ironworkers than was generally believed. The man who preceded his patient at the work also lost his sight. It was not until quite late that the workers complained, because owing to the dilatation of the pupil they were able to see round the cataract.—Dr. T. M. LEGGE (Home Office) asked as to the proportion of ironworkers afflicted with this condition, as it was necessary in considering the scheduling of diseases to proceed tentatively. In the case of glass-blowers' cataract there could be no question as to scheduling, as he examined the lenses of 513 glass-blowers, and found cortical cataract in 64 in the right eye and 72 in the left.—Mr. PARSONS said that as secretary of a Royal Society committee on the subject he sent many inquiries to ophthalmic surgeons practising in ironworks districts, and the negative replies he mostly obtained led him to the belief that it was the custom for moulders to wear tinted glasses. He asked for further evidence for his committee to continue their investigations.—The PRESIDENT suggested the name "furnace-workers' cataract," seeing that furnace work was common to all.

Dr. E. A. COCKAYNE and Dr. J. ATTLEE showed a case of Amaurotic Family Idiocy in an English child, not Jewish, as was the rule.

Mr. N. BISHOP HARMAN showed a case of Spontaneous Rupture of Cornea in Secondary Glaucoma caused by dislocation of the lens. An injury caused total dislocation of one lens into the posterior chamber, where it was loose. The resulting glaucoma was absolute and vision was lost. The cornea was anæsthetic and the iris quite retracted and immobile. The condition remained so for two years without ulceration of cornea or splitting of Descemet's membrane. Three months later, however, without any further accident, the cornea was split horizontally and membranes prolapsed, the cause having been retrochoroidal hæmorrhage.

The PRESIDENT showed a form of Trench Periscope he had just designed. At the top of a narrow shaft, 6 feet in length, is fixed at an angle of 45° a plane mirror, about 2½ inches in diameter, and an exact counterpart lower down, the distance from the first being adjustable by pegs and holes. Only the top mirror projects above the trench, and this can be largely concealed by a piece of earth. By looking straight into the lower mirror all movements can be plainly discerned without incurring danger.—Lieutenant-Colonel ELLIOTT pointed out how necessary, in order to estimate the distance of the enemy, it was to have the binocular form of periscope.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Fixed Chronic Retroversion of the Uterus.—Exhibition of Specimens.

A MEETING of this section was held on Jan. 15th, Dr. M. J. GIBSON, the President, being in the chair.

Dr. BETHEL SOLOMONS read a paper on Fixed Chronic Retroversion of the Uterus, in which he condemned all such palliative treatments as vaginal douches, tampons, rectal massage, &c., because, firstly, they seldom or never cured; secondly, they kept the patient a chronic invalid for the very

long time which it took even to relieve; thirdly, if the adhesions were so loosened that replacement could be effected and a pessary inserted the patient was in a position very little better than before. He advocated operation in all cases where there were symptoms. Curettage and any necessary vaginal plastic work were done first. The abdomen was then opened, and having treated the adhesions and any adnexal abnormality he suspended the uterus either by Kelly's method or by shortening the round ligaments as the case directed. Where pus was present he drained with iodoform gauze through the posterior fornix and vagina. He considered the abdominal route excellent for drainage, but preferred the vaginal because there was less pain in the removal of the gauze. No opening was left in the aponeurosis; hence hernia was less likely, and the convalescence was usually shorter. If pus was present it should always be taken for culture.—Mr. SPENCER SHEILL said he did not think that all the operations were equally satisfactory; each case had its own indications. All cases with which he had to deal were capable of being replaced; but in a case of markedly adherent uterus he would certainly agree that laparotomy was necessary, though he did not agree that ventral suspension should follow, since the amount of irritation produced by suturing was likely to bring about abortion.—Dr. GIBBON FITZGIBBON said that the drainage of pus tubes was a difficult point. He always felt that by fixing the fundus of the uterus, and then draining the pelvis through the lower angle of the wound, one ran the risk of making the suspension into a fixation, and in these cases, therefore, he thought there was a distinct reason for selecting the Gilliam operation; then, if adhesions were produced they would not cause fixation in the same way as if the uterus was fastened to the peritoneum. He preferred drainage through the abdomen where there was any real necessity for drainage. He had followed up several cases of pregnancy after ventral suspension and had never found that they had any difficulty in pregnancy or delivery, but in some of the cases retroversion recurred three or four weeks after delivery, though this was easily cured by replacement and retention in place by a pessary for six or eight weeks, and then remained in place without any further treatment.—Dr. D. G. MADILL said he did not think that all cases of fixed uterus required operation at all. Most cases that he had seen operated on in Berlin were done by the vagina, and there was no doubt that this method prevented the handling of the intestines, but he thought the abdominal route was preferable. He suggested that these cases were all due to infection, and if any intraperitoneal fluid could be obtained a culture should be taken.—Dr. E. H. TWEEDY said he thought that Dr. Solomons had well described the modern method of treating retroversion. He had never heard of pregnancy in a retroverted uterus being liable to cause rupture of the intestines. Abortion was not unavoidable even in a fixed retroverted uterus, and he therefore thought it a serious step to open the abdomen in such cases whilst the woman was pregnant. He was satisfied that the results were good in ventral suspension, and he had never seen any difficulty in delivery after it. His object was to fix the fundus of the uterus to the bladder, and by that means he obtained an absolutely mobile uterus which was free from danger in pregnancy and delivery. When he heard of relapse after ventral suspension he knew the operation had not been properly performed.—Mr. V. J. McALLISTER said that the exact position and shape of the backwardly displaced uterus were of importance when such a uterus became pregnant. A pregnant uterus which was not only retroverted but also markedly retroflexed would, even in the absence of adhesions, have very little chance of righting itself spontaneously. The presence or absence of uterine descent would guide him, amongst other things, in his selection of an operation for restoring the uterus to its proper position. The Alexander-Adams operation did not lift the uterus to any great extent. It merely drew it forwards. He always ended up these cases by doing this operation provided there seemed to be no reason for attaching the uterus higher up on the abdominal wall. The disadvantage of suspension operations was that, owing to the traumatism of the peritoneum, apart from the question of sepsis, a considerably broader attachment to the uterus might occur than had been intended. Were the uterus very large he would excise portion of its anterior wall.

—The PRESIDENT said that these cases of chronic fixed retroversion were always due to infection, and there were no symptoms which could be associated with the malposition alone. Symptoms attributable to the pelvis were due to the persistence of the pelvic inflammation or to the adhesions. Pain rarely existed if a sufficient interval had elapsed since the infection occurred. The fixation of the uterus and adnexa might cause dyspareunia and difficulty or pain during defecation, but sterility and abortion were the most usual causes of complaint. The relief of fixation of the uterus and adnexa should only be considered when any of the symptoms mentioned were present. Laparotomy should be performed. After the adhesions were divided, and salpingostomy performed in cases of sterility, the round ligaments should be shortened. When symptoms due to the inflammatory condition persisted or recurred after a sufficient interval from time of infection in spite of thorough expectant treatment, as was most likely in gonorrhoeal cases only, removal of the uterus, tubes, and ovaries gave the best results.—Dr. SOLOMONS, replying, said that he made it a rule if any pus could be obtained to take it for examination. He always followed Dr. Tweedy's teaching never to operate on fixed retroversion if there were no symptoms, but it seldom happened that patients consulted him if they had no symptoms. One should choose the operation which best suited the case. He did not agree that when a ventral suspension was performed it went back afterwards. It did not go back unless the operation was badly performed.

The PRESIDENT showed a Tumour from a patient, aged 47 and unmarried, complaining of uterine hæmorrhage every third week. Otherwise she was in good health, and was able to do her work, which entailed much cycling. The abdomen was found fatty and distended, but flaccid and tympanitic all over. There was no difficulty in palpating a fibroid uterus bimanually, but when the abdomen was opened a large thin-walled flaccid cyst, obviously subperitoneal, was found between the layers of the right broad ligament. The intestines were adherent to it. The peritoneum was divided between some of the coils of adherent intestine and the cyst shelled out. The fibroid uterus was then removed with the cyst *en masse*. The patient made a good recovery.

The PRESIDENT also showed a specimen removed from a patient, aged 35, unmarried. She felt perfectly well, but had noticed the abdomen increase in size three months previously. The tumour was impacted in the pelvic cavity, which it filled completely, and above the pelvic brim it swelled out into an enormous growth. There was no history of bleeding or pain, and only occasional difficulty in emptying the bladder. The uterus was found above the pelvic brim and crowded over to the right side; it was atrophied, and there were two small subserous fibroids in the fundus. There was difficulty in removing the tumour, which was growing from the left side of the uterine body and under the broad ligament. The huge cavity which was left was drained through the vagina, covered over, and the uterus left behind.—Dr. TWEEDY said he did not think the second specimen was a myoma at all. He recalled two similar specimens which subsequently proved to be retroperitoneal lipomata. The condition had never been diagnosed before operation.—Dr. SOLOMONS said that fibromyomata of the broad ligament had been reported springing from the uterus and from the subperitoneal muscle fibres of the broad ligament.—Mr. SHEILL thought the shape of the specimen and the manner in which it adapted itself to the pelvis were in favour of lipomata.—Dr. MADILL, referring to the first specimen, asked if any remnant of ovary or uterus was found. In connexion with the second specimen he suggested that it was a myomatous tumour.—Mr. McALLISTER said from the way in which the tissue cut he felt satisfied that it was a soft fibroma. There was also an absence of the coarsely lobulated appearance so characteristic of a lipoma when cut into after hardening.—Dr. R. J. ROWLETTE remarked that the observations of the operator at the time of operation would of itself help to decide whether the tumour was a retroperitoneal sarcoma or not. From the small amount of cut tissue to be seen he thought it looked more like a fibroid. Referring to the first specimen, he said there was a very unusual blending of the cyst and the myoma. He recollected Dr. Tweedy's specimens, and in both cases the tumour was higher up than in this case.

Mr. SHEILL showed photographs of a child born with an unusual frænum between the upper maxillary bone and the lip. It was not considered of great consequence at the time and was left, but as the child grew older it grew rapidly, and at the time of the development of the teeth he had to cut the frænum, which came level with the tips of the two central incisors. He suggested that an epithelial inclusion had been pressed out through the two mesial nasal processes.—Mr. G. P. MOORE, speaking from the dental surgeon's point of view, said that the condition was better dealt with early, as when it was not treated until after the eruption of the permanent teeth it caused excessive space between the centre incisors and often great irregularity and projection forward of the incisors, which was difficult to cure and very unsightly.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Marsupialisation of Degenerated and Infected Fibroids.—Rupture of Uterus with Fatal Result.—Exhibition of Specimens.

A MEETING of this society was held in Manchester on Jan. 15th, Dr. J. H. WILLETT (Liverpool), the President, being in the chair.

Dr. W. E. FOTHERGILL (Manchester) mentioned two cases of Large Fibroids he had met with—one in 1899 and the other in 1914—whose adhesions were so dense and so universal that the growths could not be removed. In each case the degenerated tumour was scraped away by hand through the abdominal incision until nothing but a thin shell was left. The capsule was then stitched to a portion of the abdomifal incision. In one case the cavity was packed with gauze, while in the other double drainage was provided by a long rubber tube, one of whose ends passed down into the vagina while the other opened through the abdominal wound. The latter method gave the better result as to rapidity of healing.

Dr. FOTHERGILL also described the injuries in a case in which the medical attendant performed version, and subsequently discovered a complete Rupture of the Uterus. The patient was aged 40, and the labour was her tenth at full term. She had also had five abortions. On admission to hospital the pulse-rate was 144, and the patient had lost so much blood that she was gasping. The abdomen was opened and its wall above the pubic symphysis was seen to contain extravasated blood. The peritoneum was torn from the pubic symphysis in front to a point near the lower pole of the right kidney. The bladder was exposed, with the exception of its trigone and the lower part of its left lateral aspect. The ureter and the blood vessels on the right side could not be traced through the mass of blood clot and lacerated tissue which occupied the right side of the pelvis and lower abdomen. The cæcum and appendix were torn from their bed. The uterus was quickly removed and the peritoneum was drawn together. A gauze drain was left *in situ* for 48 hours. The patient did well for four days, but suppuration occurred which was confined to the pelvis, and she died on the sixth day. The records show that this was the seventeenth case of serious rupture of the uterus treated by abdominal hysterectomy at St. Mary's Hospitals, Manchester, the first having been done by Dr. Walls in 1905. Of these 17 cases, 12 were successful, and these 12 women doubtless owed their lives to the removal of the uterus. Suture of the rent was not enough in serious cases of uterine rupture.

Dr. W. K. WALLS (Manchester) exhibited the following specimens: 1. A Rupture of the Pregnant Uterus through an Old Cæsarean Section Scar removed from a patient, aged 30, who had had three previous Cæsarean sections. The patient was seven months pregnant when sudden severe abdominal pain commenced, followed soon after by general collapse. The abdomen was opened and the peritoneal cavity was found to be full of blood, which was oozing from the top of the old Cæsarean section scar in the uterus. Supravaginal hysterectomy was performed, but the patient died from shock the same evening. 2. Cæsarean Section for Accidental Hæmorrhage oozing from the Scar of a previous Cæsarean Section. This patient had had one previous Cæsarean section and was within ten days of full-term pregnancy for the second time when she commenced with symptoms of accidental hæmorrhage. For

this reason Cæsarean section was performed, during which the abdominal cavity was found to contain a large quantity of blood. This was oozing from the lower part of the old Cæsarean section scar in the uterus, which was very broad and thin and would probably soon have opened out along its whole length. Supravaginal hysterectomy was performed, and the patient made a good recovery.

Dr. W. FLETCHER SHAW (Manchester) exhibited a specimen of Spontaneous Rupture of Old Cæsarean Section Scar in a Full-term Pregnant Uterus. This patient had had one previous Cæsarean section and was within a week of full term in her second pregnancy, for which Cæsarean section was again going to be performed, when severe abdominal pain commenced during the night while the patient was in bed. Six hours later she walked to the hospital, arriving in a collapsed condition, still complaining of severe pain in the middle line of the abdomen from the umbilicus to the pubes, and this portion of the abdomen was very tender. The pulse was fluttering and uncountable, and the temperature subnormal. The abdomen was opened and the old uterine Cæsarean scar then found to have completely opened up, so that the child was delivered without any enlargement of this wound being required. The placenta was on the anterior surface of the uterus, and plugged the wound. At the time of operation no further bleeding was taking place, but the lower part of the abdominal cavity was filled with blood clot. Supravaginal hysterectomy was performed, and the patient made a good recovery.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—

A pathological meeting of this society was held on Feb. 5th, Mr. Aslett Baldwin, the President, being in the chair. The President showed specimens of: (1) an Innocent Tumour of the Submaxillary Gland which simulated malignant disease; (2) Stricture of the Transverse Colon; and (3) (with Dr. Reginald Morton) radiographs of a Large Ureteral Calculus in a youth aged 15½ years. One of the radiographs was taken after collargol had been injected up the ureter. This completely surrounded the calculus and thus verified its position. At the operation the ureter above the calculus was found dilated to about the size of the small intestine.—Mr. McAdam Eccles showed specimens of (1) Gall-stones (a) causing obstruction, (b) loose in dilated gall-bladder, (c) blocking the cystic duct; (2) Vermiform Appendices showing (a) mucocele, (b) papilloma, (c) perforation protected by omentum, (d) colloid carcinoma, (e) diverticulum from the side opposite the mesentery.—Dr. E. A. Saunders and Dr. R. R. Elworthy showed specimens of two cases of Congenital Disease of the Heart with death from broncho-pneumonia.—Dr. Elworthy also showed a number of interesting pathological specimens, including one of Aneurysm of the Posterior Communicating Arteries, and also one to illustrate Recurrent Laryngeal Palsy in a child aged 2 years.—Dr. Saunders and Dr. Morton showed radiograms illustrative of Progressive Stages of Early Pulmonary Tuberculosis in Children; also radiograms showing the Lung Picture in Early Pulmonary Tuberculosis before and after sanatorium treatment.—Dr. H. J. F. Simson showed specimens of Ovarian Cysts, Uterine Carcinoma, and the Fallopian Tubes from a case of Tuberculous Peritonitis.—Mr. N. Bishop Harman showed specimens illustrating (a) Spontaneous Rupture of the Cornea in Secondary Glaucoma caused by Dislocation of the Lens; (b) Panophthalmitis, due to hatpin wound; and (c) Sympathetic Ophthalmitis following subconjunctival rupture of the sclerotic.—Dr. Saunders also showed specimens of the Indian Leech, recently introduced by the efforts of Professor A. E. Shipley, to counteract the present shortage of the usual supply from the continent.—Commenting on the President's specimen of intestinal obstruction, Dr. Seymour Taylor pointed out that while obstruction due to malignant disease was placed among the chronic forms, rightly in most cases, clinical experience showed that malignant obstruction might be acute, and cases occurred in which the sufferer was entirely ignorant of the grave disease he had until some urgent condition called for the advice of his medical attendant.—The President and Mr. F. G. Lloyd referred to the very interesting series of specimens shown by Mr. McAdam Eccles, some of them almost unique. Particular mention was made of the size to which gall-stones and other concretions could reach without giving rise to any serious symptoms, and conversely how frequently a comparatively small

calculus called for immediate operation to save life.—Colonel T. H. Hendley, I.M.S., commented upon Mr. Bishop Harman's specimens, and cited a case of sympathetic ophthalmia following perforation of one eyeball by a single pellet of shot.—Dr. Saunders having been called away, Dr. Morton referred to the skiagrams he had made of the cases of early pulmonary tuberculosis in children. These were from children in whom the physical signs were either entirely absent or so few and slight as to make it impossible to form any definite opinion on their condition. The X ray appearances in all of them were quite definite, and such as are found in cases proved to be tuberculous. Considering the importance of an early diagnosis in indicating the proper treatment at the earliest possible time, he urged the advisability of a radiographic examination of the lungs in those children who, while presenting no definite signs of any particular disease, were not thriving and enjoying life as others of the same age. With regard to the lung picture before and after sanatorium treatment, here as elsewhere once the bacillus had obtained a footing for a definite period of time a permanent mark was left as evidence of the unwelcome visitation. The markings in the lungs after successful treatment followed the same general plan as before; some of the finest "mottling" might have disappeared, but the chief difference might be described as one of diminished contrasts in the picture.—Mr. Lloyd was not so sure as to how much reliance was to be placed on the X ray findings, and considered that while the radiographic method might be a useful adjunct to other methods of diagnosis it had by no means superseded them. At the same time he paid a tribute to the advances made in radiography in recent years.

Reviews and Notices of Books.

Pharmacology, Clinical and Experimental.

By Dr. HANS H. MEYER, of Vienna, and Dr. R. GOTTLIEB, of Heidelberg, Professors of Pharmacology. Authorised translation into English by JOHN TAYLOR HALSEY, M.D. With 65 text illustrations, 7 in colour. London and Philadelphia: J. B. Lippincott Company. 1914. Pp. 604. Price 25s. net.

TAKEN in its widest sense experimental pharmacology is the relation of organisms under chemically changed conditions of environment, and must therefore be regarded as a department of biology. The authors treat the subject from two aspects, organotropic—i.e., the action of drugs on function—and etiotropic, their action in disease. The pharmacology of the following systems is dealt with in succession—motor nerve endings, central nervous system, sensory nerve endings, the vegetative system, eye, digestion, genital organs, circulation, respiratory organs, the renal function, sweat secretion, metabolism, muscle, blood, temperature, and inflammatory phenomena. A special chapter discusses pharmacological effects on the causes of disease and deals with antiseptics, anthelmintics, and antitoxins, acquired immunity, serum therapeutics, the serum treatment of tetanus and diphtheria, and bacteriolysis. The last chapter is devoted to the conditions necessary for the action of medicaments, such as solubility, concentration of the drug in the blood, the condition of the organism itself to be acted on, antidotes and antagonism, and the various refractive or hypersensitive conditions that are included under the term idiosyncrasy—not forgetting anaphylaxis.

In the chapter on motor nerve endings curare is very fully dealt with—although it is but little used in medicine—because it gives such a good example of localised action, as well as affords a typical instance of how the action of a drug can be studied. As to the pharmacology of the central nervous

system, drugs may either increase or diminish its functions, but cannot change these functions qualitatively. This section is treated in a lucid, practical, and even masterly manner. First those drugs that excite, such as strychnine, and then those that depress and paralyse central nervous functions are discussed, special attention being given to the morphine group. Morphine itself occupies a peculiar position owing to its striking and wonderful property of subduing pain, although morphine does not diminish the excitability of the brain and cord to the same extent as such narcotics as alcohol and the chloroform group. Special attention is drawn to its action on the respiratory centre. Alcohol and inhalation anaesthesia, including ether and chloroform, are next considered. Chloral and its cumulative perils are set forth, while trional, veronal, and their allies are discussed and their uses and dangerous effects commented on. The well-known theory of narcosis of Meyer and Overton is elaborated and the importance of lipoids is emphasised. Local anaesthesia is fully treated, most emphasis being laid on cocaine and its allies. There is a good coloured plate illustrating the sympathetic nervous system. The monograph on the eye in relation to drugs is concise and practical. The pharmacology of the digestive tract is treated discreetly in about 60 pages, while 100 are given to the circulatory organs. The treatment of the action of digitalis is particularly good.

We have instanced only a few points why we cordially commend this treatise to all interested in the progress of pharmacology in relation to scientific medicine. Much praise is due to the translator, who is professor of pharmacology, therapeutics, and clinical medicine in Tulane University.

A History of the Indian Medical Service, 1600-1913.

By Lieutenant-Colonel D. G. CRAWFORD, Bengal Medical Service (retired list). London: W. Thacker and Co. 1914. Pp. 529 + 535. Price 28s. net.

IN two handsome octavo volumes there has at length appeared a detailed history of the Indian Medical Service worthy of its subject and fit to rank with any of the regimental histories of the British army hitherto published. Of the 45 chapters the first 12 are concerned with the early history of European medicine in India before the formation of the Bengal Medical Service in 1763. The next 15 describe the chief features in the official history of the three separate medical services in Bengal, Madras, and Bombay, and also give a large amount of information on many matters of professional and social interest. Chapters XXVIII. to XXXIV. give in more detail special records of distinguished medical men of the Indian establishment; and in the following 10 chapters are discussed the recent history of the Service and medical matters in India generally.

His brother officers, and all concerned with medical practice and education in the East, are indebted to Colonel Crawford for his researches and for the clear manner in which they have been presented to the reader. Many curious sidelights are thrown on old-time Anglo-Indian life which will make the book interesting to the lover of the past; but its main purpose has been to record the gradual evolution of the present homogeneous and uniform service from the small beginnings of the seventeenth century, showing how in the true British way mistakes are made, and order and success

eventually attained by the means of these mistakes. As the author quotes from Emerson: "They builded better than they knew." We may mention that each chapter has an appropriate poetical heading, which relieves the somewhat dry recital of records and regulations. We regret to learn that the time-honoured story of the cure of Shah Jehan's daughter by Gabriel Boughton, and the consequent bestowal on him of a grant in favour of the Honourable East India Company, has no foundation. The Bengal Medical Service was founded in 1763; on two occasions, in 1766 and 1796, it was divided into two separate services, military and civil, and each time the separation was found to be impracticable, and the two branches were again united. Administrative officers of the Army Medical Department were first appointed to India in 1825, and friction appears soon to have arisen between the two services.

Colonel Crawford is doubtful as to the suitability of the present system of instruction for I.M.S. officers. He considers that Indian diseases would be better studied in India, in the large hospitals of the Presidency towns, which provide an extensive field for research, and are now well equipped with modern appliances. The recent history of the Service is treated of in detail as regards scientific, military, civil, and professional matters. The author believes that the regimental hospital system will be abolished in the Indian as it was in the British Army. It "has outlived its usefulness." A closer relationship between the military and civil branches is desirable. How it is to be brought about is not yet apparent. Professor Maclean's Christian names were William Campbell, not William Charles; G.C.B. stands for Grand Cross, not Grand Commander, of the Bath (p. 210). A list of Fellows of the Royal Society in the Indian Medical Service would be acceptable.

Colonel Crawford is to be highly congratulated on the successful accomplishment of his task, while the volumes are extremely well printed and well got up.

Flies in Relation to Disease: Non-Bloodsucking Flies.

By G. S. GRAHAM-SMITH, M.D. Cantab. Cambridge: University Press. 1914. Pp. 389. Price 12s. 6d. net.

WE have already noticed the first edition¹ of this handbook, but the second edition is not merely a reprint with a fresh preface. It is an amended and enlarged replica of the original edition, though appearing only a year later. Even with such excellent assistance as is offered by the *Zoological Record* it is hard to be sure that a bibliography upon a given zoological subject is exhaustive, and the difficulty obviously increases with the length of the list of titles of works given. The author finds 25 pages fairly closely printed necessary for bringing the reader in view of what has been written concerning the muscidæ and other non-biting flies. It is not therefore surprising to learn that Dr. Graham-Smith has found that he neglected a few memoirs in the earlier edition. These are duly intercalated in their proper places in the present revised bibliography. The work to which these papers refer is, however, separately dealt with in an appendix, together with more recent work which has appeared since the first edition of the book was published. This appendix occupies nearly one hundred pages, and is a testimony to the immense

output of scientific work nowadays. It appears from an inspection of the lists of titles that a large amount of this collected work is from British sources; much also is American, much French, and rather less Italian. The Germans do not bulk so largely.

Gonorrhœa and its Complications in the Male and Female.

By DAVID WATSON, M.B., C.M. Glasg., Surgeon Glasgow Lock Hospital; Dispensary Surgeon for Venereal Diseases, Glasgow Royal Infirmary, &c. With 72 illustrations and 12 plates, 9 of which are in colours. London: Henry Kimpton. 1914. Pp. 375. Price 15s. net.

It is only within recent years that the importance of gonorrhœa has been recognised, even by the medical profession, and still it is regarded as a trivial affection by the general public. It is now acknowledged that there is room for discussion whether it is not on the whole a more serious disease than syphilis, when all its numerous complications and sequelæ are borne in mind. This book contains one of the best accounts that we have seen of this disease and its treatment; it is comprehensive, it is eminently readable, and above all it is extremely practical. The author, while mentioning carefully the various methods which have been employed in treating the different conditions which may occur, explains the grounds on which choice between them should be based. With regard to the use of gonococcal vaccine he speaks very definitely; he says that though he is convinced that the vaccine has a specific power to modify the disease, yet he is equally convinced that as yet we have not worked out the data necessary to enable us to use the vaccine with sufficient control over its therapeutic action to justify its indiscriminate employment.

The absence of references to original papers should be corrected in future issues.

LIBRARY TABLE.

Text-book of Massage and Remedial Gymnastics. By L. L. DESPARD, Member and Examiner, Incorporated Society of Trained Masseuses. Second edition. London: Henry Frowde, Oxford University Press, and Hodder and Stoughton. 1914. Pp. 413. Price 12s. 6d. net.—Those who practise massage require to have a knowledge of a certain amount of anatomy, but it is by no means easy to determine what are the exact limits of the anatomy they should be taught. In this volume we cannot help thinking that the author has included too much, though perhaps this is an error in the right direction. It is surely unnecessary to include in such a work as this details as to the surfaces of the fibula or the origin and insertion of the pectineus muscle. At all events, we may rest assured that very few students of massage ever learn such details as these. Apart from these strictures we have nothing but good to say about this book; the student of massage will find all that he needs in it. The large number of illustrations add to the value of the work; those representing anatomical structures come from "Cunningham's Anatomy."

Essays and Addresses. By the late JAMES CAMPBELL BROWN, D.Sc. Lond., LL.D. Aberd. With a portrait and 22 illustrations. London: J. and A. Churchill. 1914. Pp. 208. Price 5s. net.—We can cordially recommend these essays to the notice of

¹ THE LANCET, March 14th, 1914, p. 756.

students intending to take up chemistry as a profession, particularly in its industrial applications. The late Dr. Campbell Brown, who was professor of chemistry in the University of Liverpool, possessed an intimate acquaintance with the relations of chemistry to the every-day affairs of human life, and at this moment when great opportunities are opening for extending our chemical industries his essays on such subjects as "A French View of German Industries," "What is Technical Education?" "Chemistry as a Profession," "Analytical Chemistry as a Profession," "The Ethics of Chemical Manufacture," come opportunely in this publication. His counsels are good and most interesting in view of the "decadence of English chemical industry" (see ill-informed writers *passim*).

The Midwives' Companion. By FÉLICIE NORTON. London: J. and A. Churchill. Pp. 101. Price 1s. net.—This book is intended for the use of senior students and midwives. In our opinion the author is ill-advised to lay so much stress upon asepsis and to say so little about antiseptics, a much better practice for midwives than any attempt to carry out strict asepsis. We cannot agree with the recommendation of Schultze's method for the revival of a child suffering from white asphyxia, and we entirely disagree with so-called aseptic plugging of the vagina by a midwife for a case of placenta prævia. The author might have been more careful in her revision of her proofs.

Manual of Training for Jungle and River Warfare. London: T. Werner Laurie. Pp. 124. Price 3s. 6d. net.—Major Gordon Casserly, of the Indian Army, has put together in this little book a great deal of useful information. From the medical point of view his advice generally is sound and clearly expressed. Many native terms are used which might have been translated or explained, and it would have been useful if he had stated what are "the usual precautions" to prevent contamination of a water-supply. It is not customary to carry an enema syringe in a "pocket case" (p. 83), and 1 in 100 carbolic acid is not an efficient application to wounds. The preventive measures against malaria might have been given more fully. On practical matters regarding warfare in the jungle and on river banks the book is most useful. It is well illustrated by the author.

The Book of Prescriptions. By E. W. LUCAS, F.I.C., F.C.S. Tenth edition. London: J. and A. Churchill. 1915. Pp. 371. Price 6s. 6d. net.—The enormous number of drugs brought into use since the last edition of this book was printed would have rendered a fresh issue imperative, even in the absence of a new determining cause in an alteration in the list of official drugs. A new British Pharmacopœia, casting out many drugs and absorbing a few fresh articles which have found favour with the medical profession, has led to a revision which is likely to be of great service. As a member of the British Pharmacopœia Reference Committee Mr. Lucas had already done work which has received special acknowledgment, and it may therefore be assumed that he will be a safe guide in many of the pitfalls presented by the new standard. The prescriptions should be frequently consulted by beginners who are anxious to adopt the metric system; they are printed in parallel columns with a formula of familiar appearance on the left hand, and with the equivalent in the metric system on the right. These object lessons will be very useful

to those who wish to move with the times. Information relating to many new unofficial remedies has been included, but there is no indication of its unofficial character; it might have been well to mark such paragraphs with an asterisk or other sign. The list of synonyms on page 15 appears rather antiquated in attempting to encourage mystification. When preparing the next edition with greater leisure it would be well to secure more consistency and to employ the official names and contractions; on the first page it is a surprise to find "hexamethylenetetramine" where the official title "hexamine" should have appeared. We meet with Spirit. Chlorof. and with Sp. Chloroformi, with P. Saponis and Pulv. Saponis, with P. Boracis and Pulv. Boracis. These minor blemishes, however, do not materially detract from the general utility of the book; they are more than counterbalanced by the precision of the text and by the numerous hints to prescribers and dispensers.

MISCELLANEOUS VOLUMES.

NEVER did the British Empire and race stand in more urgent need of the greatest possible excellence in mothercraft than at this present time, when the European nations are engaged in a death struggle. The National Association for the Prevention of Infant Mortality and for the Welfare of Infancy has done well in putting forth, under the title of *Mothercraft* (London: The National League for Physical Education and Improvement. 1915. Pp. 244. Price 3s. net), a course of lectures delivered under its auspices during the winter quarter of last year at the Royal Society of Medicine and Charing Cross Hospital Medical School. These lectures are 16 in number and cover the subject of antenatal preparation of the mother, various forms of infant feeding, the general and special ailments of children, and the establishment and working of infant welfare centres. The medical contributors are Dr. C. W. Saleeby, Dr. Amand Routh, Dr. Harold Waller, Dr. F. Langmead, Dr. Eric Pritchard, Dr. H. C. Cameron, Dr. Ronald Carter, Dr. D. Forsyth, Lieutenant-Colonel E. Roberts, M.B., Mr. Sydney Stephenson, Mr. Macleod Yearsley, Mr. C. E. Wallis, Mrs. Florence Willey, M.D., and Dr. F. J. Allan. Marion Fitzgerald writes on How to Visit Homes, and Miss M. B. Synge adds a chapter on the Clothing of Infants. To the end that the book may be widely read by Englishwomen of all classes it would seem desirable that a much cheaper edition should be published.

An interesting series of lectures on *Science and Religion*, delivered by eminent men of science in Browning Hall, London, during "Science Week, 1914," has recently been published (London: W. A. Hammond, Holborn Hall, E.C. Pp. 138. Price 1s. net). The lectures are as follows: Help from the Unseen, by Sir Oliver Lodge, F.R.S.; the Supreme Intelligence in and above Nature, by Professor J. A. Fleming, F.R.S.; Religion the Crowning Stone of Science, by Professor W. B. Bottomley, F.C.S.; the Witness of Geology to Revelation, by Professor Edward Hull, F.R.S.; Science and the Unknown, by Mr. John Allen Harker, F.R.S.; the Origin of Life, by Professor G. Sims Woodhead, F.R.S.; Religion and Science, their Alleged Incompatibility, by Professor Silvanus Thompson, F.R.S. In these essays the reputed incompatibility between the fundamentals of religion and the facts and principles established by science in its various branches is critically investigated by men of established reputation in the scientific world, who put forward reasons for holding that a study of the material aspect of nature, so far from negating the grounds for a belief in a spiritual substratum and origin, entirely supports such a view. An introduction describes the aim, the speakers, and the meetings, while Mr. J. E. Stead, F.R.S., adds a rider in the shape of a suggestion that religion must be scientific, by which is meant that its further investigation must be conducted by scientific methods. The book contains portraits and brief bibliographical notes of the speakers, and is well worth reading.

The Balkan Cockpit, by W. H. CRAWFORD PRICE (London: T. Werner Laurie. Pp. 369. Price 10s. 6d. net), is a pleasantly written chronicle of the war of 1912-13 between the Balkan Alliance (Bulgaria, Greece, Montenegro, Serbia) and Turkey, together with the ensuing war between the Allies—namely, Bulgaria against the other three. The downfall of Turkey in the first instance and the defeat of Bulgaria in the second are still bearing fruit in the present general European conflict. From a medical point of view the most interesting portion of the book is the account which Mr. Price gives of the admirable paper organisation of the Turkish military medical force and its hopeless breakdown in action. Further, although the Turkish Red Crescent organisation worked well the authorities thereof refused to lend a helping hand to their military brethren, whose hospitals were lamentably understaffed and were without food, medical comforts, bandages, or medicines.

Miss ETHEL C. HARGROVE went to Portugal on the invitation of the Sociedad Propaganda de Portugal as a member of the British International Association of Journalists, and her book, *Progressive Portugal* (London: T. Werner Laurie. 1914. Pp. 276. Price 6s. net), is a brightly written, if superficial, account of what she saw and did there. Portugal, which has been Britain's ally from the time of the Crusades, is a country with a most interesting history. Its climate, architecture, and vegetation are all fascinating and but little known to the majority of British travellers. The recent change of government has apparently been of an awakening nature, and Miss Hargrove points out that the Republic took early steps to reorganise the public institutions, especially the hospitals, which are now being modernised all round. The book is supplied with a map and with numerous illustrations, but we have also noticed an unduly large number of misprints.

Of books for students of the résumé class there are two kinds—those that should be unhesitatingly condemned for inherent defects and those that are not dangerous unless improperly used, and may even serve a useful purpose if used merely to systematise knowledge. To the latter class belongs *Aids to Pathology*, by Dr. HARRY CAMPBELL (London: Baillière, Tindall, and Cox. 1915. Pp. 228. Price 3s. net; in cloth 3s. 6d. net). The third edition of this book contains much additional matter on immunity. A chapter on diseases of the heart has been added, and there is considerable amplification in other directions.

JOURNALS.

British Dental Journal.—The first January issue of this journal contains a paper by Mr. W. Hern on Oral Hygiene and Prophylaxis. After recounting the various conditions giving rise to gingivitis Mr. Hern discusses the most efficient means of keeping the mouth in a state of cleanliness. He seems to think that reliance can be placed upon the use of the tooth-brush, and suggests patterns of brushes to be used as well as the methods for brushing the teeth. He discusses briefly the value of tooth powders, and incidentally does not place much reliance upon the use of antiseptic washes. The discussion on the paper is printed, and many of the speakers obviously thought that the question of oral hygiene and prophylaxis should be approached from rather a broader point of view than that suggested by Mr. Hern—viz., on the broad lines of dietetics and efficient mastication.—Mr. W. H. Gilmour reports an interesting case of fractured teeth from a bullet, the bullet having indentations on both upper and lower surfaces.—Mr. Arthur Underwood contributes a very interesting letter on the question of the scarcity of dental practitioners, and thinks that the cause rests in the unsatisfactory condition of dental legislation.—The issue for Jan. 15th contains an article by F. W. Broderick on The Relation between Calcium Metabolism and Dental Diseases. The author discusses the manner in which calcium is found in the body, and describes how the calcium balance is maintained. He considers that caries is the result of a deficient calcium output, which reduces the alkalinity of the saliva, while he regards periodontal disease as due to calcium saturation, the excess salts being deposited around the necks of the teeth and, acting as mechanical irritants, press the gum's margins away and lay them open to infection. There is a reprint of a lecture by Mr. Howard Mummery on Calcification; also two letters dealing with the question of shortage of qualified dentists.

New Inventions.

VENTILATED ELASTIC STOCKINGS FOR VARICOSE VEINS.

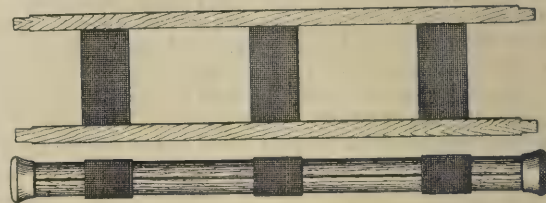
THE medical profession will, I think, be glad to have their attention called to a ventilated stocking which I have recently been employing in cases of varicose veins associated with eczema. In these cases patients often complain bitterly of the almost intolerable itching provoked by the heat inseparable from the use of stockings of solid elastic. The substitution of perforated bandages is but a partial remedy for the drawback, the necessary overlapping of the folds of the bandage neutralising to some extent the effect of the perforation. The intense irritation suffered in an exceptionally severe case of mine prompted me to consult Messrs. Maw, Son, and Sons as to the practicability of constructing an elastic stocking on the principle of cellular clothing. The attempt was made, and made successfully, for I have tried the stocking in a number of appropriate cases and have found that it admirably fulfils the desired purpose of affording support without heat. The stocking, composed of finely meshed silk and elastic, supports the distended veins not less effectually than does a stocking of solid elastic, while permitting free ventilation. For obvious reasons, in cases in which there is discharge it must not be applied until the exudation has ceased. Where economy is an important consideration cotton can be substituted for silk, and, whether made of the one material or of the other, the stocking can be employed with advantage in cases of uncomplicated varicose veins as well as in those in which there is associated eczema.

Harley-street, W.

MALCOLM MORRIS, F.R.C.S. Edin.

THE "STICK" LEG-REST.

THIS ingenious little invention consists of a very stout stick split in halves, the halves being joined by bands of webbing, as shown in the picture. The halves, closed and secured by a thick rubber cap on each end, make a stout walking-stick. When the halves are separated the stick becomes a leg-rest of a very comfortable sort in any position; each half is converted into an adjustable splint, the leg



resting comfortably on the webbing. The length of the stick is 33 inches, so that as a rest the apparatus just fits across the seat of a railway train. The removing the caps to open up the stick is simple, and the caps are very substantial, so that they may not be worn out by use as ferrules. The price of the stick leg-rest is 4s. 6d., and all communications should be made to Mr. George Marshall, Seymour Works, Seymour-place, Bryanston-square, London, W.

BELGIAN REFUGEES UNDER THE INSURANCE ACTS.

—A circular of the Local Government Board addressed to local refugee committees has given explanations as to the position of Belgian refugees towards insurance when they obtain employment in this country. Employers have to pay the same contributions whether they employ their countrymen or Belgians. The refugee in certain circumstances may claim exemption, as may the British subject. The Belgian, if insured, must obtain a card and either join an Approved Society or remain outside, as he may prefer. His benefits from the society will be such as it is in a position to give in return for his contributions. He will, in fact, be in the position of an ordinary foreigner. By joining an Approved Society he will usually become entitled to medical and sanatorium benefits at once, but will not be in the same position as a British subject with regard to other benefits.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 13, 1915.

The Invalid and the Fighting Line.

WE called attention recently to a striking manifestation of patriotism shown by subjects of aortic insufficiency who, while quite aware of the nature of their disability, had nevertheless been found in the fighting line of the French army. A recent report to the Académie de Médecine has shown that this display of heroism has been widespread, incidentally proving that compensation in quite serious cardiac lesions is for a time often very complete. The situation, however, that may arise from the successful attempt upon the part of a physically damaged man to enrol himself in the army as sound may be so serious that while we admire we regret such exploits. And the French army is not singular in providing examples. The experience of the medical men who passed recruits for enlistment in our rapidly created army was, as is known, satisfactory on the whole: it entirely contradicted the more gloomy prognostications of the untiring prophets of our physical decay as a nation, while the summary inspection led to the immediate remedy in many cases of minor evils which in all probability would have otherwise gone unattended, inasmuch as their subjects had finished their school careers before the national system of inspection was in effective order. The good health now maintained in our army is a proof that in physique and stamina there has not been the widespread deterioration which in many magazine articles we were asked to face; while on the other hand the capacity shown by masses of men drawn from every class, varying in age by 20 years, and in many cases not distinguished by external signs of rude health or muscular vigour, to endure the shocks of actual war as well as the strenuous labour of military training, has been surprising. There has, of course, been from time to time sickness in different camps, but by treatment and prevention, by the coöperation of the medical and sanitary branches with military chiefs who understood the importance of hygiene, the health of our troops has been conserved in a wonderful manner. But undoubtedly a certain number of unfit men were accepted. The work of the recruiting medical officers in the first days of stress was done at full speed, and we have all heard of individual cases of recruits whose disabilities for a military life were manifested very quickly. And it was quite well known that the enrolment of some of these men was not due so much to the hurry of the recruiting procedure as to that very spirit of heroism which has been so markedly displayed by cardiac subjects in France.

At the meeting of the Académie de Médecine of Paris M. Ch. FIESSINGER reported some truly remarkable cases in which the subjects of other forms of heart disease showed as much staying power as those suffering from aortic insufficiency. The declaration of war caused, said M. FIESSINGER, the national energies to manifest themselves in an "élan incomparable," and under the stimulus failing organs worked better for a time. Those who had good reason to remain at home ignored medical advice and went to the frontier like the others. M. FIESSINGER referred to 12 cases, in 6 of which the patients were retired officers. The remaining 6 were officers in the army, who would no longer incur the shame of being considered "infirmes" and followed their comrades. The diseases present in these 12 cases were as follows: in 5 affections of the myocardium (myocarditis or renal heart), paroxysmal tachycardia in 1, and valvular disease in 6 (3 cases of mitral regurgitation, 1 of mitral obstruction, and 2 of aortic insufficiency). The treatment usually followed was administration of 1/10th of a milligramme of crystalline digitalin for two or three consecutive days as a prophylactic when the heart was not failing, and the same dose for 10 consecutive days with intervals of four days when there were signs of myocardial failure. As might have been foreseen, the subjects of valvular disease stood the campaign better than those who had myocardial disease. An infantry captain and two lieutenants who had well-compensated mitral disease were able with the aid of digitalin to endure the fatigue of the life of combat. An officer, aged 23 years, who had retired from the army in consequence of aortic insufficiency, rejoined and took part in the battle of the Marne, but forgetting to take his digitalis his heart dilated. He rested for a fortnight and then returned, but was discharged in spite of his protestations. An officer, aged 26 years, who had retired from the service in consequence of aortic insufficiency, re-engaged as an aviator. In the middle of August he fell with his machine from a height of 20 metres. His shoulder was dislocated and he was covered with bruises. He came to M. FIESSINGER for examination of his heart. He was doing well, and he soon resumed aerial work. A major in the medical corps suffering from mitral obstruction remained alone on the field with more than 700 wounded after the disaster in Lorraine to the 15th Corps. He was taken prisoner and afterwards exchanged for a German army surgeon taken prisoner by the French. He rejoined his corps and passed many days and nights at the front until increasing dyspnoea vanquished him. To M. FIESSINGER'S advice to take a fortnight's rest he replied that it was impossible. He kept his bed for 48 hours and then rejoined. Two officers—one an "intendant-général" in the Army Service Corps, on whom depended the supplies of food of 350,000, the other a major in the veterinary service, who slept on straw for several weeks at a time, treating men more often than horses, and giving numerous injections of

antitetanic serum—suffered from renal heart with tachycardia and cardiac gallop. Yet they have been through the campaign for over three months and are still well. Such devotion, said M. FIESSINGER, is a magnificent page in the annals of France.

We have every sympathy with the urgent desire of him who, despite some physical condition that might prove a bar, desires to enlist, but a good physical standard of all is an absolute necessity for the common safety of an army. Modern conditions of war have made that standard much more elastic; place has been found in the ranks for the small man, for the man who is too tall (theoretically) for his weight, for the man who wears glasses, and for much other first-class material that formerly could not be employed; but there should be no leniency shown towards the applications of those whose infirmities might prove a source of danger to others. The recruit who deliberately conceals his epileptic history is not serving his country really; he cannot remain in the ranks while subject to such a disease, and his detection may be the sequel to a tragedy. It is possible to condone the case of the healthy middle-aged man who confuses his chest measurement with his age in entering himself as 37; many victims of cardiac disease do not themselves know their plight, and if they are admitted to the army the fault is not theirs; but those who conceal conditions difficult to diagnose, which, if known, would rightly debar them from military service, make an error—even though a gallant one; for they might break down at a moment when upon their efficiency depended the safety of many comrades.

The Physiology of the Minute Quantity.

A GOOD many years ago chemists talked of catalytic action, and the expression then was, as most must confess, merely a convenient expression. What it really meant was that a chemical reaction between two agents was highly stimulated by a third, albeit this third body was infinitesimal in quantity and unchanged. We now possess a quite large number of examples in which catalysis plays an important and even essential part not only in inorganic chemical changes but in life processes also. Taking an example of pure chemistry first, the union of hydrogen and oxygen in practically unlimited quantity may be effected, as is well known, by mere traces of colloidal platinum, while without its intervention the elements might remain for ever apart. The common and striking feature of catalysis is that the quantity of the catalyst is very small compared with the quantities of the main reacting substances, and this feature is also illustrated in the action of the organic catalyst, the enzyme. The enzymes, in fact, bear a close analogy to the ordinary inorganic catalysts. Thus the enzyme invertase is capable of inverting 100,000 times its own weight of cane

sugar, and its activity is practically unimpaired through the process, particularly when the ultimate product is removed as fast as it appears.

A more recent development of catalysis has been made in plant physiology, which promises to be of the utmost importance to agriculture, while the circumstances in which we live necessarily turn the attention of thoughtful people to the productivity of the soil. It has been found that minute traces of certain mineral bodies may promote or hinder healthy plant growth, just as the presence of a minute quantity of iodine in the thyroid gland determines its activity. In a suggestive monograph forming one of the agricultural series issued from the Cambridge University Press,¹ Dr. WINIFRED BRENCHLEY records the results of some experiments made at Rothamsted experimental station on the influence of certain metallic compounds on vegetable growth. The trials are by no means complete, but they indicate that a very interesting and entirely unexplored field is being approached. The prospect at any rate is opened up of the possibility of utilising certain stimulating compounds as artificial manures, and Dr. BRENCHLEY points out that as only small traces are beneficial, larger amounts being poisonous to the plant, it is obvious that only small quantities would be needed. Again, the compounds are not usually very expensive and thus a considerable increase of crop for a relatively small outlay might be anticipated if no complicating factors intervened. In this interesting investigation a very limited number of plant poisons were investigated, but sufficient evidence was adduced to show that even these few differ considerably in their action upon plant life. While, to quote some examples, certain compounds of copper, zinc, and arsenic are exceedingly poisonous, compounds of manganese and boron are far less deleterious, so that a plant can withstand the presence of far more of the latter substances than of the former. The tested compounds of copper, zinc, and arsenic do not seem to stimulate growth, even when they are applied in the smallest quantities, whereas very dilute solutions of manganese and boron compounds decidedly increase growth. A differentiation, however, is shown even in this stimulative action, for while manganese is the more effective in stimulating barley, boric acid is far more potent for peas, the shoots being particularly improved. The minute quantity of manganese sufficient to produce stimulation is very remarkable, since 1 part of the sulphate in 100 millions was found to exercise a beneficial action. The yields were increased in some experiments by as much as 41 per cent. in the case of spinach, 19·4 per cent. in the case of peas, 13·9 per cent. in the case of flax, and 5·3 per cent. in the case of barley. In some investigations carried out with rice in Japan the harvest of grains was increased by one-third owing to careful manganese

¹ Inorganic Plant Poisons and Stimulants. By Winifred h. Brenchley, D.Sc., F.L.S. Cambridge University Press.

stimulation. This stimulation is assumed to be due by some observers to an increase in the oxidising powers of the oxidising enzymes, so that destruction of the hindering compounds can be accomplished as quickly as they are formed, growth thus continuing more rapidly. Manganese possibly intervenes as a catalytic agent in the material changes of which plants are the seat, and the metal thus participates in an indirect manner in the building up of the tissues and in the production of organic matter. And this great accelerated synthetic result is the outcome of an application of a solution containing 1 part of the salt in 100 million parts.

In considering the experimental work that has so far been done on the subject of poisoning and stimulation Dr. BRENCHELY concludes that it is not true to maintain the hypothesis which some have done that all inorganic plant poisons act as stimulants when they are present in very small quantities, for while some poisons do increase plant growth under such conditions others fail to do so in any circumstances. It is more probable that some inorganic poisons act as stimulants when present in small amounts, the stimulating concentrations varying both with the poisons used and the plants on which they act. The researches on this subject have attracted considerable attention, and their development will be watched with the keenest interest. The particular work on agricultural applications apart, it is obvious that as these investigations are pursued they may help to clear up much of the obscurity which surrounds the remarkable action of small entities in the human body.

Annotations.

"Ne quid nimis."

FAMILY RESEMBLANCES.

HAD the "Slingsby Case" been tried in less stirring times it certainly would have attracted a greater share of public attention, particularly from those who are interested in the inheritance of physical characters. Mr. Justice Bagnall Deane recognised a close degree of resemblance between the boy defendant and his father, Mr. Charles Slingsby, particularly in the case of the lower jaw; Sir George Frampton detected a likeness between the ears of the boy and his mother. On the day on which the learned judge gave his judgment a well-known anthropologist, an anatomist famous for his accuracy, descended in a lift with two men and a boy, all three of whom stared stolidly at the advertisements on the wall. One of the men was short and dark, the other fair and of medium height. The expert at once assigned the little boy as son to the fair man from their close resemblance. As the lift gates swung open the boy took the dark man by the hand, called him "dad," while the fair man went his own separate way. In telling us his experience he adds: "Another case of mis-identification came under my notice on the evening of the same day. An intelligent and experienced lady called on a friend

who took her up to the nursery to see the latest born. The visitor found two nurses and two babies, and exclaimed, 'Well, I need not ask which it is; this one is your image.' She then selected the wrong child." From such cases one must conclude that general resemblances may prove misleading. But it is otherwise with particular features, such as the Hapsburg lip. Medical men are well aware of such features; a nose, an eye, or an ear may have such a pronounced shape that a family identification may be made with certainty. Individuals with pronounced features are in the minority. There is no question that such features may be and are inherited. In many instances the characteristic form is not apparent in the young; it becomes fully developed after adolescence, and this is especially true in the case of the nose, and is also the case with the lower jaw. The boy defendant is 4 years of age; in the next 16 years his jaw will be remodelled over and over again to make room for the permanent molar teeth, the teeth which will replace his milk set, and to fit the growth of the upper jaw; it would be at maturity we should expect a real, not an apparent, resemblance of the paternal form of jaw to appear. The ear offers a more certain means of identification of likeness, but very few men have studied this complex structure so closely as to be in a position to offer an expert opinion as to degree of likeness. In the photographs which have been published of the parties in the Slingsby case an expert has little difficulty in recognising what was apparently regarded as a striking feature of the "Slingsby" ear. The resemblance lies in the degree to which the hinder border of the ear is folded over so as to form a welt. It is well known that the folding of the ear margin is a result of retrogression; the more the border is folded over the greater is the degree of developmental retrogression. There is no folding of the border of the ear in the more primitive apes; in some of the higher apes, especially in the orang, there is a high degree of infolding, for the ear of the orang is more retrograde than that of most human races. A considerable degree of infolding of the ear is so common that an anthropologist would give it only a slight value in working out resemblances. Sir George Frampton's method of observation we do not know, but we must admit that sculptors have certainly a right to express an opinion. It was Thomas Woolner who drew Darwin's attention to the presence of a nodule on the welt of the human ear which the great evolutionist recognised as a remnant of the ancient pointed tip. That all parties concerned in the Slingsby case should show a trace of the ancient tip is not a matter for surprise; the ear is exceptional which shows no sign of this ancient mark.

MEDICAL RECIPROCITY WITH BELGIUM.

THE Executive Committee of the General Medical Council at its last meeting on Jan. 22nd had before it the recent Order in Council extending Part II. of the Medical Act of 1886 to the kingdom of Belgium.¹ The committee considered evidence submitted to it by Belgian professors, graduates, and others with regard to the course of study and examinations which candidates had to undergo in order to obtain the degree of Doctor of Medicine in the universities of Belgium and the legal authorisation

¹ THE LANCET, Jan. 16th, 1915, p. 143.

to practise in that country. The committee was satisfied with the evidence produced, and resolved as follows:—

That so long as the Order in Council of Jan. 7th, 1915, remains in force any person who produces evidence satisfactory to the Registrar that he has obtained the degree of Doctor of Medicine in the Belgian universities of Brussels, Ghent, Liège, and Louvain, and is legally authorised to practise medicine, surgery, and midwifery in Belgium; and who satisfies the Registrar as to the other particulars specified in Section 12 of Part II. of the Medical Act, 1886, shall be entitled to be registered in the Foreign List of the Medical Register.

Further communications received by the Registrar of the General Medical Council, through the clerk of the Privy Council and His Majesty's Minister at Havre, from the Belgian Government, afford official confirmation of the evidence placed before the Executive Committee as to the education and examinations on which medical qualifications are conferred by Belgian universities and colleges. The Acting Minister of the Interior, in the course of his note to Sir Francis Villiers, used the following appreciative words: "Veuillez croire, Excellence, que le Gouvernement Belge est très sensible à cette nouvelle marque de la sympathie de l'Angleterre et qu'il en remercie vivement les autorités de votre pays." In the absence of complete information on Jan. 22nd, the question of the recognition of Belgian dental diplomas was held over until the next meeting of the Executive Committee.

THE HUMAN STOMACH AND THE CANALIS GASTRICUS.

It has been commonly supposed that fluids and solids on being swallowed must necessarily be mixed up in the stomach, but there is now much important evidence to show that such a view must be revised. It is held that fluids can be swallowed, in fact usually are swallowed, and yet not mix with other ingesta within the lumen of the stomach; they pass on, by the aid of a special arrangement to be immediately noted, direct from the cardiac orifice to the pylorus. Comparative anatomy has shown that such an arrangement holds good for ruminants, and at a later time it was discovered that carnivora possess the same faculty, despite the fact that in them the stomach is a single chamber. Recently Dr. F. T. Lewis has called attention to a canal along the lesser curvature of the human foetal stomach; he has called it the "canalis gastricus." He says "it suggests a continuation of the oesophagus and may become a tube during its physiological activity, by the approximation of its lips." Some recent radiographic and anatomical researches by Dr. Geoffrey Jefferson in the *Journal of Anatomy and Physiology* (1915, vol. xlix., p. 165) give further strong support to the likelihood of some action such as this persisting in adults and realising in this way a selective course to the pylorus for fluids. Screen examinations of 22 normal people after being given a mixture of bismuth oxychloride and milk of the consistency of thin cream showed that in 18 instances the fluid was confined to the lesser curvature; in the other 4 cases it spread rapidly over the sides of the stomach, but these stomachs were atonic. That such a course does not merely represent the shortest path gravity would demand is shown by the holding up of some portion just below the cardiac orifice. Nor does Dr. Jefferson agree wholly with Dr. Hertz that the normal empty stomach is contracted down like a piece of small intestine, the localised

stream being accounted for in this way. That the stomach really makes a coördinated effort to direct the fluid into a channel at its lesser curvature is thus suggested by X rays. Finally, there must be recognised the active part played by the oblique muscle of the stomach in accomplishing this local canalisation. It is probably by the contraction of its upper fibres that the bismuth, as seen by the screen, was so constantly held up below the cardiac orifice. This sheath of muscle, in fact, is of more importance than was supposed, and its action aids in forming this functional "canalis gastricus." Further proof of the specialisation of the lesser curvature of the pars cardiaca for some function other than that of slowly pressing the food out into the outer pyloric part is shown by the marked difference in the action of the muscle along the lesser curvature as seen by X rays, the change occurring at the incisura angularis. The whole diameter of the pars pylorica takes part in active peristaltic waves coursing towards the pylorus. It is, however, very rare to see any indentation of the lesser curvature in the pars cardiaca. There thus seems to be a fundamental functional difference between the two parts, which gains its best explanation from the facts above discussed.

SMALL-POX, VARICELLA, AND "ALASTRIM."

THE discussion at the Royal Society of Medicine¹ arising out of a paper read by Dr. W. G. Armstrong on the subject of the epidemic of small-pox at Sydney in 1913 was in many respects interesting and suggestive. The peculiar feature of the epidemic in question was the mildness of the symptoms, although the population affected was largely unvaccinated. Thus, in many instances there were but few cutaneous lesions, while in a patient who presented a severe confluent eruption on the face and extremities the constitutional disturbance was so slight that the man's complaint was only of the insufficient food given him and of the soreness of his feet if he tried to stand on them. There was only one death among over 1000 cases of the disease. Coincidentally with this epidemic of small-pox there was an increase in the prevalence of varicella, but the behaviour of the two diseases with regard to vaccination negated any possibility of the epidemic being of hybrid character. Epidemics of specially mild small-pox have been observed in many parts of the world and have received different names, such as milk-pox, Cuban itch, Spanish measles, and "alastrim"; and doubt has prevailed as to the identity of these mild forms with true variola. Dr. C. J. Martin quoted a report by Ribas, of São Paulo, who upheld the diversity of the local disease known in Brazil as "alastrim" from small-pox owing to its low mortality, its trivial degree of constitutional disturbance, the absence of the characteristic smell, and the possibility of successfully vaccinating patients within a short period after the attack. On the whole, the evidence is in favour of regarding all these conditions as mild variola, and the success of Dr. J. Burton Cleland and Dr. E. W. Ferguson in inoculating calves with material derived from patients in the Sydney epidemic affords powerful support to this view. Dr. Martin, however, suggests that the three diseases—small-pox, chicken-pox, and "alastrim"—are of common parentage but have become so far differentiated as to breed true at the present time.

¹ Proceedings of the Royal Society of Medicine, December, 1914, Section of Epidemiology.

REMUNERATION ON THE PANELS.

It is fairly evident that if there had been no war there would have been a considerable amount of disappointment and resentment felt by medical men on the panels of many districts owing to their receiving as their remuneration for 1914 less than they had reason to expect, and owing to their only receiving the balances acknowledged to be due by the committees after appreciable delay. In the present circumstances the war is responsible for an increase in the difficulty of the position owing to the number of insured persons who have enlisted. There are no contributions made by them or on their behalf by their employers, and owing to the drain upon clerical staffs everywhere arrears of work have accumulated, with general dislocation of business. It is too early to say what may be done in the future in order to relieve the situation, but it seems very doubtful whether committees can be compelled to find money and make payments where the ordinary working of the Insurance Act does not provide it. At the same time the hardship to the medical profession and to the druggists must be great when payments which they have had every right to expect are postponed or withheld. The medical practitioners have had to arrange the organisation of their professional work to meet the demands of their insured patients upon their time and attention, and the druggists have had to meet anticipated requirements by laying in stocks of drugs which have to be paid for. Both have to contemplate the return of many insured persons serving in the army with wounds or with impaired health, and a general alteration of the probabilities with regard to their need for medical care. For the rectification of some part at any rate of legitimate causes of complaint it may be necessary to wait until the war is over and legislation can proceed upon more normal lines than now. At present it may be urged on behalf of the medical men affected that they are entitled to demand payment upon all patients on their lists until they have been notified as provided for by Regulation 29, and that if the financial provisions of the Insurance Act do not meet the needs created by war, legislation should supply the deficit.

THE ADMINISTRATION OF THE PHARMACY ACTS.

THE annual report of the Registrar of the Pharmaceutical Society, which was presented to the council at the February meeting, shows that as regards membership the steady progress which has been revealed by these reports during the last ten years or more is well maintained. The number of members is now well over 8000, which is about half the number of registered persons; the majority of the non-members no doubt consist of qualified chemists who are not yet in business on their own account. There is also an increase in the number of names on the Pharmaceutical Register, and although this increase is only slight it is satisfactory to know there is an increase, while the fact that there has been a considerable accession to the ranks of the registered students is very promising. From the general point of view the most interesting part of the report is that which deals with the administration of the penal clauses of the Pharmacy Acts. The number of cases of alleged infringement that require investigation is still large, but smaller

than it was during the previous year. During 1914 1113 cases were investigated, and in 239 cases proceedings were instituted, and the council was successful in all but one or two. The list of offenders is headed by unqualified drug store proprietors, of whom 93 were proceeded against, the offence generally being that of keeping open shop for the sale of poisons. Among the persons by whom penalties were paid there were also a number of qualified pharmacists who had committed one or other of the irregularities which are offences under the law regulating the sale of poisons. The list of offenders also includes unqualified assistants in drug stores, unqualified managers and assistants to chemists, executors to chemists, limited companies trading as chemists and druggists, unqualified directors of limited companies, grocers, herbalists, general storekeepers, and one ironmonger, one seedsman, one oilman, one manure agent, and one unqualified assistant to a doctor. It is evident from the variety of the occupations of the persons proceeded against that the task of preventing the irregular sale of poisons is no light one. In five cases of alleged infringement of the Pharmacy Acts which had been reported it was found upon analysis that the poison asked for had been omitted from the articles purchased, and proceedings could not, therefore, be taken under these Acts; but pursuing the policy decided upon some years ago the council proceeded in two of these cases under the Merchandise Marks Acts, and the defendants were convicted for selling goods to which a false trade description was applied.

THE STREPTOCOCCUS VIRIDANS IN INFECTIONS OF THE UPPER RESPIRATORY TRACT.

AN interesting paper is published in the *Archives of Internal Medicine* for Jan. 15th by Dr. Russell L. Cecil, of New York. He adopts the classification of streptococci put forward by Schottmueller, based on the appearances of the colonies on blood-agar—namely, *S. hæmolyticus* (longus, pyogenes), *S. viridans* (mitior), and *S. mucosus*. Dr. Cecil states it to have been found by many investigators that clinically the *S. hæmolyticus* produces suppurative or phlegmonous inflammations, while the *S. viridans* usually leads to catarrhal processes. His own work has been specially devoted to determining the part played by the latter organism in infections of the upper respiratory tract. From the study of 89 cases of such infections he found the *S. viridans* to be the predominant organism in 50 cases, or 56.2 per cent. In general these infections were characterised by a mild course and a tendency to chronicity with frequent recurrences, which he attributes to the short duration of the acquired immunity. These infections of the upper respiratory tract due to *S. viridans*, especially those of the tonsils, sinuses, and the tooth sockets, are frequently associated with endocarditis and arthritis, and he is of opinion that there is a good deal of evidence that the latter conditions are secondary to the former. He has found autogenous vaccines to be of considerable value in cases where the structural changes are not too advanced, but he takes care to point out that in cases of bronchitis with emphysema or bronchiectasis, old sinus infections with thickened walls, and advanced pyorrhœa with retraction of the gums, vaccines can bestow only limited benefits. He believes that vaccines are more especially

valuable in the prevention of recurrences, and suggests that prophylactic vaccination against infections of the upper respiratory tract deserves more attention. He states that his own experience indicates that most persons who suffer from frequent colds are susceptible to one particular organism with which they are constantly being reinfected. Dr. Cecil's paper is an interesting and practical contribution to a subject of general interest.

ON Wednesday next, Feb. 17th, at 5 P.M., before the Historical Section of the Royal Society of Medicine, Sir Alexander Simpson, of Edinburgh, will read a paper on Jean Astruc (1684-1766), of the Montpellier School, the historian of syphilis, but nowadays more famous in theological circles as the founder of the higher biblical criticism. This is the aspect which will be specially considered, we understand, by Sir Alexander Simpson.

THE Morison lectures will be delivered before the Royal College of Physicians of Edinburgh by Dr. W. H. B. Stoddart within the hall of the College, 9, Queen-street, Edinburgh, on Monday, Wednesday, and Friday, March 8th, 10th, and 12th, commencing each day at 5 o'clock P.M. The subject of the lectures will be the New Psychiatry.

THE annual meeting of the British Medical Association, which was to have been held at Cambridge this summer, will not take place. The statutory annual general meeting of the Association and the annual meeting of Representatives will, however, be held.

MEDICINE AND THE LAW.

Medical Certificates and the Education Authorities.

At the Bangor police court recently a summons taken out by the education authority against Ernest Kenrick, the father of a boy who had been kept back from school on the ground of ill-health, was dismissed by the bench after hearing the evidence of Mr. Helsby, the boy's medical attendant. Mr. Helsby stated that in his opinion the boy was too delicate to attend school, and he had advised that he should be kept at home during the winter. He had given no certificate because he did not think that the education authority could compel parents to obtain and pay for medical certificates in such circumstances, and he knew that the authority did not pay for them. In other districts where the education authority paid for certificates he had given them. He was always willing to give the required information to school attendance officers. The clerk to the magistrates advised the bench that it was doubtful whether the education authority had any right to put parents to the expense of obtaining medical certificates, especially as the attendance officers could always call upon the medical men. He advised the magistrates that they had no option but to dismiss the case. Mr. Helsby explained that he might spend a great deal of time in writing certificates which the majority of parents could not afford to pay for, and that he attended the court in order to maintain his position on the question of principle. He is to be congratulated upon having done so with complete success, and it is to be noted that

his conduct in the matter was not only legally correct but reasonable and conciliatory, as he was willing to give verbal information to the attendance officer. Presumably that official would not find it necessary to call upon the medical man in all cases where illness was alleged as a ground for failure on the part of a pupil to attend school, but would satisfy himself as to the fact of illness by a visit to the child's home. Otherwise the tax of personal answer to inquiries would fall as heavily upon the medical man as that of signing certificates without remuneration. It would be fairer and more businesslike if all education authorities adopted a uniform practice of requiring and paying for certificates in cases where any uncertainty indicates that they are desirable.

Prescription by Telephone.

At an inquest at Burton-on-Trent lately it was proved that death had been caused by the error of a dispenser to whom the medical man attending the deceased had telephoned, instructing him to send a solution of a certain drug containing 1/75th of a grain for hypodermic injection. In taking down the message the dispenser mistook 1/75 for 0.75, and adopted the latter figure in preparing the solution, with the result recorded. The mistake should be noted, as all of us who use the telephone are familiar with the mistakes made in telephoning with regard to figures, even when the listener is a practised operator.

A Pernicious Quack Sentenced.

Arthur Denison Light, described as principal of the British Health Institute and publisher of a periodical called "Power, Purity, and Progress," was sentenced to three months' imprisonment at the Old Bailey recently upon a charge of attempting to obtain money by false pretences. Light, against whom *Truth* had frequently warned the public, pretended to treat diseases of the sexual organs and sold books and appliances of the character usual with such gentry. One of Light's ingenious devices was to offer to make examinations of urine free of charge. He was met here by the ingenuity of a detective, Inspector Wagstaff, who submitted an example consisting of cold tea and soap, and was informed that the patient supposed to have passed it was suffering from catarrh of the bladder. Inspector Wagstaff and a Mr. Leader, a member of a young men's association called the "Alliance of Honour," who got into communication with the prisoner and placed the correspondence in the hands of the police, are to be congratulated upon having secured for him a sentence which, if inadequate, will serve as a warning to him and others.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next meeting of this association will be held at 11, Chandos-street, Cavendish-square, London, W., at 3.15 P.M., on Thursday next, Feb. 18th, under the presidency of Dr. David G. Thomson. A paper will be read on Meningo-Vascular Syphilis by Dr. Roy M. Stewart, with lantern demonstration. There will be no quarterly dinner.

LITERARY INTELLIGENCE.—Messrs. Smith, Elder, and Co. announce for publication, under the title of "The Minor Horrors of War," a number of articles which have appeared since the beginning of the war in the *British Medical Journal* by Professor A. E. Shipley, the Master of Christ's College, Cambridge. These articles deal with various insect and other pests which cause disgust, discomfort, and often disease amongst our troops now fighting in all quarters of the globe.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for Month ending Nov. 30th, 1914.

1	2	3	4	5	6	7	8	9	10	11	12
Place.	Correspondent.	Rainfall in milli- metres.	Metric tons of deposit per square kilometre during month.								
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
			Tar.	Carbon- aceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO ₄).	Chlorine (Cl).	Ammonia (NH ₃).
ENGLAND—											
Birmingham, Central ...	Dr. J. Robertson, M.O.H.	86	0.11	4.17	10.05	1.47	6.30	22.10	3.66	0.52	0.05
" Aston ...	"	79	0.04	1.44	3.58	0.56	4.28	9.90	2.15	0.56	0.04
" S.W. ...	"	78	0.02	0.65	1.34	0.47	2.35	4.83	0.96	0.43	0.03
Bolton ...	Dr. J. E. Gould, M.O.H.	156	0.10	1.77	3.89	7.12	14.25	27.13	8.46	2.63	0.14
Exeter ...	Mr. F. Southerden.	81	0.03	1.21	2.12	1.94	3.75	9.06	1.67	0.65	0.04
Kingston-upon-Hull ...	Mr. A. R. Tankard, Public Analyst.	55	0.05	2.05	2.94	1.10	3.91	10.05	2.33	0.60	0.05
Liverpool ...	Dr. E. W. Hope, M.O.H.	79	0.24	3.22	6.85	3.15	4.41	17.87	3.57	1.34	0.21
London— Meteorological Office ...	Director, THE LANCET Laboratory.	74	0.14	1.63	4.29	3.89	5.36	15.30	2.98	1.21	0.11
Embankment Gardens ...	Mr. J. Ollis, Chief Officer, Public Control Depart- ment, L.C.C.	64	0.21	2.84	5.84	2.55	3.95	15.40	2.73	0.79	0.10
Finsbury Park ...	"	40	0.14	2.58	5.21	1.85	3.79	13.59	1.57	0.37	0.03
Ravenscourt Park ...	"	51	0.10	1.13	2.84	1.01	2.73	7.81	1.33	0.39	0.07
Southwark Park ...	"	69	0.06	2.88	5.17	1.51	5.77	15.37	2.99	0.63	0.08
Wandsworth Common ...	"	42	0.08	0.36	1.04	0.41	2.57	4.49	1.37	0.29	0.02
Victoria Park ...	"	42	0.04	0.92	1.76	1.25	4.49	8.46	2.65	0.31	0.04
Golden Lane ...	Dr. W. J. Howarth, M.O.H.	74	0.07	3.78	4.67	2.06	5.59	15.67	3.67	0.89	0.16
Malvern ...	Mr. W. Osborne Thorpe, Engineer U.D.C.	61	0.01	0.18	0.27	0.95	0.97	2.38	0.53	0.36	0.01
Manchester*— School of Technology ...	Mr. J. Warrington, Secretary, Air Pollution Advisory Board.	91	0.14	3.69	6.16	1.27	6.40	17.66	3.77	1.38	0.10
University ...	"	86	0.13	3.01	6.82	1.62	5.82	17.40	3.17	1.25	0.09
Newcastle-on-Tyne ...	Dr. H. Kerr, M.O.H.	82	0.19	4.22	6.81	2.46	5.08	18.77	3.00	0.67	0.21
Oldham ...	Dr. J. B. Wilkinson, M.O.H.	112	0.26	6.55	14.60	2.68	7.60	31.70	4.36	0.79	1.84
Sheffield— Attercliffe Burial Ground	Prof. W. P. Wynne, The University.	72	0.12	4.01	9.36	1.80	7.61	22.90	3.59	1.74	0.05
Hillsborough Park ...	"	91	0.06	1.44	4.86	1.17	4.90	12.43	2.66	1.08	0.03
Meersbrook Park ...	"	78	0.05	1.18	3.13	0.75	5.48	10.59	2.32	1.00	0.04
Weston Park ...	"	87	0.11	2.04	5.77	1.60	4.51	14.03	2.39	0.97	0.03
York ...	Dr. E. M. Smith, M.O.H.	70	0.13	1.92	3.03	1.68	3.64	10.41	2.10	0.67	0.50
SCOTLAND—											
Coatbridge ...	Mr. A. G. Dutch, Chief Sanitary Inspector.	107	0.14	2.33	5.54	1.15	2.14	11.30	1.39	0.33	0.10
Greenock ...	Mr. J. Devine, Sanitary Inspector.	118	0.09	1.58	2.37	1.50	3.81	9.36	1.69	0.89	0.14
Leith ...	Mr. Thomas Bishop, Sanitary Inspector.	55	0.07	1.88	4.47	2.83	1.41	10.66	1.65	0.48	0.32
Paisley ...	Mr. W. W. Kelso, Sanitary Inspector.	137	0.33	4.97	7.10	6.05	5.50	23.95	2.03	1.23	0.14

* Other Manchester records lost by bursting of bottles by frost.

Col. 4 includes all matter insoluble in water but soluble in CS₂. Col. 5 includes all combustible matter insoluble in water and in CS₂. Col. 6 includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (a) Approx. 91b. per acre; (b) 2.55 English tons per sq. mile; (c) one gramme per sq. metre; (d) 1/1000 millimetre of rainfall (see Col. 3).

The analytical work involved in the above return was undertaken respectively by J. F. Liverseege, F.I.C., Birmingham; Harry Hurst, B.Sc., F.I.C., Bolton; F. Southerden, B.Sc., F.I.C., Exeter; A. R. Tankard, F.I.C., Kingston-upon-Hull; W. H. Roberts, M.Sc., F.I.C., Liverpool; S. A. Vasey, F.I.C., Director, THE LANCET Laboratory (London Meteorological Office collections); J. H. Coste, F.I.C. (Embankment Gardens, Finsbury Park, Ravenscourt Park, Southwark Park, Wandsworth Common, Victoria Park collections), London; F. L. Teed, D.Sc., Golden-lane, London, E.C.; C. C. Duncan, F.I.C., Malvern; E. Knecht, Ph.D., M.Sc., Cheadle Davyhulme, Fallowfield, School of Technology, University, Whitefield (Manchester collections); J. J. Dunn, D.Sc., Newcastle-on-Tyne; Professor W. P. Wynne, Attercliffe Burial Ground, Hillsborough Park, Meersbrook Park, Weston Park (Sheffield collections); S. H. Davies, M.Sc., York; J. W. Biggart, F.I.C., Greenock; A. Scott Dodd, B.Sc., F.I.C., and R. M. Clark, B.Sc., Leith and Paisley respectively; Messrs. R. R. Tatlock and Thomson, Coatbridge. The correspondents referred to in col. 2 are for the most part public health authorities.

THE CORNWALL COUNTY ANALYST AND PRESERVATIVES IN FOOD.—At the last meeting of the General Purposes Committee of the Cornwall County Council the county analyst (Dr. Kitts) reported that during the past four years slightly over 1 per cent. of the milks had been treated with a preservative and 5 per cent. of the butter samples. In margarine 95 per cent. of the specimens examined had contained a boric compound in small quantities. Dr. Kitts stated that when preservatives had been used in other articles of diet the user had sometimes not even known the name of the powder he had used, to say nothing of its possible physiological effects; the vendors persuaded the users that the substances were perfectly harmless. Dr. Kitts added that it was outrageous that the public should be constantly dosed with "medicinal substances" by persons having no knowledge of their proper use or effects upon the human system.

BRISTOL INSURANCE COMMITTEE.—At the last meeting of this committee it was reported that the total number of persons on the "doctors' lists" was now 106,704, an increase of 7000 upon the previous year. The number of prescriptions dispensed during 1914 was 382,000, a rate of over 1000 a day.

SCARLET FEVER IN BELFAST.—The attempt to limit the spread of scarlet fever in Belfast by closing the public schools last Christmas has not succeeded. During the week ended Jan. 16th there were 41 notifications of the disease, as compared with 37 in the previous week, while in the week ended Jan. 23rd 55 cases were notified. Indeed, there seems to be a recrudescence of the epidemic, which has now prevailed so many years in Belfast. In the progress of preventive medicine the inability to restrict scarlet fever is the most striking exception.

MEDICAL PRACTICE ON THE EAST COAST: THE POSITION AT GREAT YARMOUTH.

(BY OUR SPECIAL COMMISSIONER.)

Great Yarmouth, Feb. 8th.

To counterbalance the inevitable economical pressure felt by a nation at war we have generally some communities more thriving than others, because they can provide some of the varied material—ships, guns, weapons, clothes—needed for the prosecution of hostilities; other localities receiving no such set-off will necessarily suffer as more and more money is consumed. Prominent among the English towns which have to bear the burden of war time stands Great Yarmouth, which has been attacked directly and twice by the enemy, and suffers indirectly by the collapse of its main sources of income. Fortunately, the first attack, a bombardment, did no harm. Presumably the German ships mistook the distance, for all their shells fell short of the town. This first attack occurred, it will be remembered, at the beginning of November, and its memory was fading away when on the night of Jan. 19th airships hovered over the town dropping bombs—this time with fatal effect in that several lives were lost, but no great destruction of buildings occurred. Financially speaking, rumour did vastly more harm to Yarmouth than the German bombs.

The netting of fish and the letting of lodgings are the principal sources of income at Yarmouth, and the war has dealt hardly with both. A considerable proportion of the inhabitants rent houses with the intention to secure lodgers for a part of them, and render themselves liable to pay rent and rates far and away above what they would pay in either direction for their personal use. Of course, they count on making up the difference advantageously by letting rooms or by taking in boarders. The season at Yarmouth is very short; it reaches its climax in September and was commencing at the end of July. War was declared on Tuesday, August 4th. Of the visitors who were already at Yarmouth hardly any remained beyond the end of that week and none came to take their place the following week. Gradually braver spirits returned, but the town never recovered its holiday population as some more fortunate watering places further south appear to have done. Perhaps, if there had been fewer sinister rumours floating about, the season might not have been so completely spoilt, but every parent who looked at an atlas recognised that if attack was possible Yarmouth was a very vulnerable spot, and decided not to venture there with children. Mere digging of trenches would not have frightened the public away from Yarmouth any more than it did from Broadstairs. But being nearly opposite the German naval base, it was but too correct to conclude that Yarmouth would be attacked, if attack became feasible, while experts were aware of the possibility of a dash from fast enemy cruisers. Therefore, those who, in spite of the war, were not disposed to forego their seaside holiday selected some place that seemed less exposed than Yarmouth.

The Effect on the Local Industries.

The next source of income in Yarmouth is the fishing industry, especially the herring trade. This gives employment to a large number of fishermen, and also to regiments of Scotch women, who follow the fishing smacks along the coast to clean and pack the herrings. They arrive just after the sea-bathing season concludes, and in the South Side near the fish-docks fill the lodgings abandoned by the holiday folks. But as most of the herrings are packed in barrels, preserved in brine, and exported to the North Sea and Baltic ports this trade is paralysed by the war. It so happens that the herring women have found during the collapse of their trade a valuable method of earning money. Exposed to all weathers, they know how to knit themselves warm woollen underclothing. To-day they can find employment knitting clothes for the soldiers at the front; but they do this at home in Scotland, not at Yarmouth. The poorer lodging-house keepers, those, for instance, who used to receive the women employed in fish-cleaning, are doing very well in billeting soldiers. On their side the soldiers are more comfortable than usual; for being housed by lodging-house keepers the cooking and attendance generally are better than in private families which do not make a business of receiving strangers.

The Prosperous Inhabitants Suffer Most.

The lodging-house keepers, however, who are able to balance the loss of their ordinary business by attending to soldiers do not belong to the class which best pays its medical attendants. The central and richer part of the town suffers most, and its inhabitants are not likely to ask for help. Employees of different sorts in commercial spheres provided modest payments for board and lodging during the winter months on condition that they retired to small rooms during the summer holiday rush. Last year there was no summer rush, and many of these winter clients have enlisted. The health authorities, I found, do not think there is as much poverty as usual among the labouring class and those sections of the community who in normal times suffer most. But other sections who, as a rule, do not suffer at all are badly hit, and they are the best ratepayers and the medical practitioners' principal source of income. The municipal authorities are greatly concerned, for they do not like to prosecute good citizens. The medical practitioner feels the same compunction about pressing for his fees. Thus one medical practitioner told me that a patient could not pay what she owed him because her lodger owed her £18, and the lodger could not pay because his occupation had practically ceased at the outbreak of war. Then those connected with the law have little or nothing to do. No one is going to institute legal proceedings while the war lasts. Jewellers, tailors, dressmakers all suffer. The war is a good reason for wearing out all the old clothes. Persons who have private means cannot realise their investments, and those who have placed money in German or Austrian enterprises may never see any of it again. Tradespeople who deal in objects that are not absolutely necessary do very little trade, and it will be seen that these are just the very classes among whom medical practitioners find their best paying patients. Even those who have money feel unsafe and think it more prudent to economise. Therefore, they only send for their doctor when it is absolutely necessary. Or, worse still, they profit by the fact that they have the means to leave the town altogether, though this is not the general rule.

The personal economy and the cessation of trade in certain directions could of course be paralleled all over the country, but in Yarmouth the depression is accentuated by the collapse of the two great industries.

Vast Gratuitous Medical Attendance.

The poorer sections of the community are, if anything, better off than before the war. The labourers readily find employment, while many of them have enlisted, and there is a good deal to do for those who remain. But the abolition of the militia by the establishment of the Special Reserve has been a great loss to the town of Yarmouth. The Norfolk Militia was almost a crack regiment. His late Majesty, Edward VII., was their colonel, and he used to come down to Yarmouth to review them, thus bringing much money to the town. Many of the old militiamen accepted a small fee to become reservists. From the town of Yarmouth alone, out of its 57,000 inhabitants, no less than 500 were called to the flag as reservists. A large proportion, not only of these reservists but of those who enlisted since the beginning of the war, were insured persons, but their wives and children were paying patients. Now this important source of income is lost to the profession, for the wives and children of those with the Flag are being attended in the main gratuitously.

The Dependents of the Soldiers.

Yielding to a generous and patriotic impulse, practically all the practitioners at Yarmouth agreed to attend gratuitously the dependents of those who enlisted. The chemists, on their side, offered not to charge for the work of dispensing the drugs, and the Prince of Wales's Relief Fund was looked to to reimburse the bare cost of the drugs consumed. But quite a large proportion of these dependents are better off than they were before the outbreak of war. The allowance they get from the War Office is in many cases higher than what their husbands could afford to give before they enlisted, and yet in those days they had to pay for medical attendance. Now the dependents can claim the services not only of the panel but of the non-panel doctors, and neither chemist nor doctor receives any remuneration. The Yarmouth practitioners are beginning to wonder why dependents who are, generally speaking, better off than they were formerly

should come upon them for gratuitous advice. This is all the harder to bear as so many patients who used to give reasonable fees are now so impoverished that they really cannot pay anything. There is as much, indeed more work to be done, but much less to receive than formerly. Thus I called on a non-panel doctor who I found had been kept from his dinner by nine army dependents. After giving them gratuitous advice a tenth visitor came, but instead of a paying patient he proved to be the water-rate collector.

After-effects of the Air Bombs.

It may not, perhaps, be generally realised that the airship bombs have materially increased the amount of work falling upon the medical practitioners. It is not the casualties that count: two killed, three wounded, and minor injuries make but little difference in the total number of patients ill from all causes. But there has been a great amount of illness and some deaths among those who were not struck. People with weak hearts, startled by the noise and alarm, had violent attacks of palpitation, and several of the deaths a few days after the bombardment were due to the shock. Then there are the highly nervous or neurotic persons. One case was that of a woman who could not be induced to sit still but was constantly springing to her feet, pacing up and down the room, wondering what she would do if Zeppelins dropped more bombs. In another patient the pulse, previously normal, continued beating at 105 per minute a fortnight after the explosions. These certainly did make a very great noise, and being absolutely unexpected were all the more startling. Now that the people are a little more accustomed to such aggression, it is probable that another attack would occasion much less disturbance. Nevertheless, the emotion they cause must seriously affect persons with weak hearts or highly nervous temperaments.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned has been granted a temporary commission as Surgeon in His Majesty's Fleet: Arthur Ernest Iles.

The following appointments have been notified:—Staff-Surgeon: B. R. Bickford to the *Pembroke*, additional. Temporary Surgeons: G. M. Oakden to the *Prince George*; D. R. Bedell-Sivright and G. S. Aspinall to the *Victory*, additional, for Haslar Hospital; W. B. Cunningham and W. L. Glegg to the *Pembroke*, additional, for Chatham Hospital, all as additional medical officers; A. G. Stewart and D. S. MacKnight to the *Vivid*, additional, for disposal.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon: W. H. Bleadon to the *Pembroke*, additional.

ARMY MEDICAL SERVICE.

Colonel John C. Culling is retained on the Active List under the provisions of Article 120, Royal Warrant for Pay and Promotion, 1913, and to be supernumerary (dated Feb. 7th).

ROYAL ARMY MEDICAL CORPS.

Brevet-Colonel Frederick Smith, D.S.O., is retained on the Active List under Article 120, Royal Warrant for Pay and Promotion, and to be Supernumerary (dated Feb. 8th).

The undermentioned are granted temporary rank as follows:—To be Lieutenant-Colonel: Dated Jan. 19th: Robert Thomson Leiper. To be Lieutenants: Dated Jan. 19th: Reginald Percy Cockin and John Gordon Thomson.

The undermentioned relinquish their temporary commissions with the Allied Forces Base Hospital:—Dated Feb. 1st: Major Arthur G. Whitehorne-Cole, Major Barnard Hudson, Major Philip M. Heath, Captain Ernest D. Roberts, Lieutenant Oswald T. Dinnick, and Lieutenant William M. S. Robinson.

Sydney George Leyland Catchlove to be temporary Captain (dated Jan. 11th).

Lieutenant Gwilym L. Pierce relinquishes his temporary commission (dated Jan. 23rd).

Temporary Lieutenant James G. Ferguson resigns his commission (dated Feb. 4th).

The undermentioned to be temporary Lieutenants:—Dated Jan. 16th: Dominic Francis Curran, John Hastings Glover, William Pritchard-Airey, and James Morrison. Dated Jan. 18th: Herbert William Fankhausen, James Churchill Dunn, Wilfred Conrad Stanley Wood, Donald Watson, Fergus Hay Young, George Allan Maling, Stanislaus Reader, Walter Netherwood Rishworth, Leonard Andersen Pearce Hurt, and Samuel Ridley Mackenzie. Dated Jan. 20th: Charles Patrick Valentine MacCormack, Archer Ryland, Charles James Glasson, James Ninian George William

McMorris, and Henry William Doll. Dated Jan. 21st: James Tate, Frank Llewellyn Gill, William Alfred Taylor, Charles Birch, Arthur William Hunter Donaldson, Henry Sydney Colchester Hooper, John Frederick Venables, Edward Benjamin Sunderland, Clive Watney Roe, Frank Cyril Greig, John Phillips Blockley, Desmond William Beamish, William Leslie, Robert Walpole Murphy, James Parker, Arthur Poole, Gerald Robinson, Cyril Carlyle Beatty, Patrick Steele, William Armour Brown, Reginald Hannay Fothergill, and Desmond Manus MacManus. Dated Jan. 22nd: William Gerald Ridgway, Robert Aikin Wright, James Hill, Bevil Molesworth Collard, Thomas Joseph Redmond Maguire, and Harold Myrie Cory.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Robert Dunlop Goldie to be Captain.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in their rank: John S. Dockrill, Henry P. Whitworth, Thomas H. S. Bell, Francis A. Duffield, John J. D. La Touche, Joseph H. Baird, John J. Molyneaux, John Stephenson, James Purdie, Clark Nicholson, William S. Wallace, Samuel D. G. McEntire, Gerald G. Alderson, Arthur A. Smalley, Wilfrid B. Wood, Francis A. Roddy, Harold A. Crouch, Herbert S. Milne, John S. Pooley, Quentin V. B. Wallace, William H. Nicholls, Henry Alcock, John Kennedy, and Thomas F. Kennedy.

The undermentioned to be Lieutenants (on probation): Henry Richard Sheppard, Cadet of the Officers Training Corps, and Robert Harvey Williams, ex-Cadet of the Officers Training Corps.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd London (City of London) Field Ambulance: Captain (Honorary Lieutenant in the Army) William E. Rielly, from the Territorial Force Reserve, to be Captain.

2nd London (City of London) General Hospital: Maynard Horne to be Captain (temporary). Lieutenant Horace G. L. Haynes, from 2nd North Midland Field Ambulance, to be Lieutenant.

Sanitary Service: Alfred Ernest Williams to be Captain, whose services will be available on mobilisation.

3rd Northern General Hospital: Norton Milner to be Captain, whose services will be available on mobilisation.

1st Southern General Hospital: Robert Beatson Dennis Hird to be Captain, whose services will be available on mobilisation.

South-Eastern Mounted Brigade Field Ambulance: Captain Charles Holt Caldicott, from Attached to Units other than Medical Units, to be Captain. Captain Arthur Lewis Heiser, from Attached to Units other than Medical Units, to be Captain.

2nd Home Counties Field Ambulance: Captain James Dundas, from Sanitary Service, to be Captain. Lieutenant Ernest Mannering Morris, from Attached to Units other than Medical Units, to be Lieutenant.

1st London (City of London) Sanitary Company: Andrew Alexander McWhan to be Lieutenant.

2nd North Midland Field Ambulance: Lieutenant Hubert Pinto-Leite, from the 2nd London (City of London) Field Ambulance, to be Lieutenant.

2nd Lowland Field Ambulance: To be Lieutenants: Stephen Anderson MacPhee and Colin Cameron Philip (late Cadet, Edinburgh University Contingent, Senior Division, Officers Training Corps).

2nd Northumbrian Field Ambulance: William Smith to be Lieutenant.

Attached to Units other than Medical Units.—To be Lieutenants: William Brown and William Alfred Philipps.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8680 births and 6995 deaths were registered during the week ended Saturday, Feb. 6th. The annual rate of mortality in these towns, which had been 18.8, 18.0, and 19.2 per 1000 in the three preceding weeks, further rose in the week under notice to 20.1 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 19.1, against 20.0 per 1000 in London. The annual death-rate last week ranged from 10.3 in Ilford, 10.9 in Swindon, 11.8 in Southampton, 12.5 in Edmonton and in Warrington, and 12.9 in Wakefield, to 29.9 in Great Yarmouth, 31.6 in Brighton, 32.5 in Merthyr Tydfil, 35.2 in Stockton-on-Tees, and 40.7 in Cambridge.

The 6995 deaths from all causes were 302 in excess of the number in the previous week, and included 513 which were referred to the principal epidemic diseases, against numbers increasing from 454 to 483 in the three preceding weeks. Of these 513 deaths, 210 resulted from measles, 123 from whooping-cough, 72 from diphtheria, 68 from infantile diarrhoeal diseases, 22 from scarlet fever, 17 from enteric fever, and 1 from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against 1.4 per 1000, in each of the two preceding weeks. The deaths attributed to measles, which had been 195, 206, and 191 in the three preceding weeks, rose to 210 last week, and caused the highest annual death-rates of 2.5 in Plymouth, 2.7 in Grimsby, 2.8 in Wigan, 3.1 in Gateshead, 3.5 in Darlington, 3.6 in Cambridge, 4.1 in St. Helens, 4.8 in Rotherham, 6.7 in Merthyr Tydfil, and 9.7 in Stockton-on-Tees. The deaths referred to whooping-cough, which had been 76, 93, and 99 in the three preceding weeks, further rose to 123 last week; the highest recorded rates from this cause were 1.2 in Blackburn, 1.7 in Reading and in Bristol, 1.9 in Rhondda, 2.4 in Sunderland, 3.1 in Gloucester, and 3.7 in Merthyr Tydfil. The fatal cases of diphtheria, which had been 63, 83, and 77 in the three preceding weeks, further fell to 72 last week, and included 16 in London, 4 each in Southampton and Halifax, and 3 each in Tottenham, West Ham, Stoke-on-Trent, Birmingham, Manchester, Salford, and Bradford. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 75, 62, and 73 in the three preceding weeks, fell to 68 last week, of which 13 were registered in London, 7 in Liverpool, 5 in Bristol, and 4 in Manchester. The deaths referred to scarlet fever, which had been 34, 23, and 31 in the three preceding weeks, fell to 22 last week, of which 7 were recorded in London. The fatal cases of enteric fever, which had been 11, 12, and 12 in the three preceding weeks, rose to 17 last week, and included 5 in London and 2 each in Wallasey, Manchester, and Leeds. The death from small-pox was registered in London, and belonged to the borough of Fulham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3647 in the ten preceding weeks, had further fallen to 3395 on Saturday last; 365 new cases were admitted during the week, against 338, 308, and 326 in the three preceding weeks. These hospitals also contained 1659 cases of diphtheria, 175 of measles, 56 of enteric fever, and 27 of whooping-cough, but not one of small-pox. The 1859 deaths from all causes in London were 101 in excess of the number in the previous week, and corresponded to an annual death-rate of 21.5 per 1000. The deaths referred to diseases of the respiratory system, which had been 472, 417, and 450 in the three preceding weeks, further rose to 497 last week, and were 150 above the number recorded in the corresponding week of last year.

Of the 6995 deaths from all causes, 216 resulted from different forms of violence and 530 were the subject of coroners' inquests, while 1864 occurred in public institutions. The causes of 61, or 0.9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Sheffield, Leeds, Bristol, Bradford, Hull, and in 51 other smaller towns. Of the 61 uncertified causes of death 15 were registered in Birmingham, 11 in Liverpool, 5 each in Manchester and Preston, and 2 each in West Bromwich, Bootle, Blackburn, and Darlington.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1224 births and 1086 deaths were registered during the week ended Saturday, Feb. 6th. The annual rate of mortality in these towns, which had been 22.8, 21.7, and 22.4 per 1000 in the three preceding weeks, further rose to 24.1 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 23.1, against 19.1 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 16.4 in Clydebank, 17.0 in Kilmarnock, and 20.8 in Edinburgh, to 29.5 in Coatbridge, 32.3 in Perth, and 39.1 in Dundee.

The 1086 deaths from all causes were 77 in excess of the number in the previous week, and included 147 which were referred to the principal epidemic diseases, against numbers rising from 92 to 128 in the three preceding weeks. Of these 147 deaths, 86 resulted from whooping-cough, 17 from scarlet fever, 16 from infantile diarrhoeal diseases, 13 each from measles and diphtheria, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3.3, against 1.5 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had increased from 28 to 82 in the six

preceding weeks, further rose to 86 last week, of which 47 occurred in Glasgow, 22 in Dundee, 6 in Edinburgh, 4 in Motherwell, and 3 in Greenock. The deaths referred to scarlet fever, which had been 9, 16, and 12 in the three preceding weeks, rose to 17 last week, and included 9 in Glasgow and 2 each in Edinburgh, Hamilton, and Clydebank. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 7, 8, and 15 in the three preceding weeks, further rose to 16 last week; 8 deaths belonged to Glasgow, 3 to Dundee, and 2 to Hamilton. The deaths attributed to measles, which had averaged 7 in the four preceding weeks, rose to 13, of which 11 occurred in Dundee. The deaths referred to diphtheria, which had been 10, 8, and 10 in the three preceding weeks, further rose to 13 last week, and comprised 4 each in Glasgow and Edinburgh, 2 each in Aberdeen and Paisley, and 1 in Ayr. The fatal cases of enteric fever were recorded in Glasgow and Edinburgh.

The deaths referred to diseases of the respiratory system, which had been 275, 238, and 272 in the three preceding weeks, further rose to 302 in the week under notice, and were 123 in excess of the number recorded in the corresponding week of last year. Thirty-six deaths were associated with different forms of violence, against 30 in each of the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 661 births and 609 deaths were registered during the week ended Saturday, Feb. 6th. The annual rate of mortality in these towns, which had been 24.4, 24.0, and 24.7 per 1000 in the three preceding weeks, further rose to 26.2 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 25.2, against 19.1 and 23.1 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 30.5 in Dublin (against 21.5 in London and 22.7 in Glasgow), 25.2 in Belfast, 27.9 in Cork, 29.1 in Londonderry, 23.0 in Limerick, and 15.2 in Waterford, while in the 21 smaller towns the mean death-rate was 20.7 per 1000.

The 609 deaths from all causes were 34 in excess of the number in the previous week, and included 38 which were referred to the principal epidemic diseases, against numbers declining from 48 to 32 in the three preceding weeks. Of these 38 deaths, 13 resulted from whooping-cough, 10 from infantile diarrhoeal diseases, 6 from measles, 5 from scarlet fever, 3 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.6, against 1.5 and 3.3 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 10, 9, and 11 in the three preceding weeks, further rose to 13 last week, of which 7 occurred in Dublin and 4 in Belfast. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 14, 4, and 8 in the three preceding weeks, rose to 10 last week, and comprised 6 in Dublin, 3 in Belfast, and 1 in Larne. The fatal cases of measles, which had been 12, 15, and 4 in the three preceding weeks, rose to 6 last week, of which 4 belonged to Belfast. The 5 deaths attributed to scarlet fever were slightly in excess of the average in recent weeks, and comprised 4 in Belfast and 1 in Waterford. Of the 3 deaths referred to diphtheria, 2 occurred in Dublin and 1 in Cork. The fatal case of enteric fever was registered in Limerick. In addition to the above deaths, 3 fatal cases of typhus were recorded in Londonderry and 1 in Dublin.

The deaths referred to diseases of the respiratory system, which had been 164, 137, and 160 in the three preceding weeks, further rose to 172 in the week under notice. Of the 609 deaths from all causes, 173, or 28 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 27, or 4.4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.9 per cent.

THE IRISH ROYAL COLLEGES AND BELGIAN STUDENTS.—The Royal Colleges in Ireland have agreed upon two important concessions to Belgian medical students who are in forced exile from their own country. In the first place, the curriculum of the four Belgian Universities will be accepted as qualifying to sit for the examinations of the Conjoint Committee of the Royal Colleges. In the second place, the Conjoint Committee is authorised to remit the fees in the case of Belgian students who are unable to pay them.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Aid for the Belgian Doctors and Pharmacists.

At the request of Sir Rickman Godlee, Dr. Herbert A. Bruce, Toronto, has successfully organised a strong and representative committee of the leading physicians and pharmacists of Canada, having for its object the relief of Belgian doctors and pharmacists. The central committee is located in Toronto, where meetings are being held regularly and the work prosecuted with vigour. Dr. Walter McKeown acts as secretary and Dr. David Gibb-Wishart as treasurer. Its personnel consists of presidents of the national and provincial medical societies, presidents of the various Medical Councils, the editors of the medical journals, and the deans of the medical departments of the universities. Although just organised there has already been made a number of substantial contributions from the members of the professions in Toronto as well as from some private citizens.

Medical Reciprocity in Ontario with Great Britain.

Late in December a special meeting of the newly elected Medical Council of Ontario was called in Toronto, and the subject of medical reciprocity was fully discussed. It was resolved unanimously to approve of the principle of medical reciprocity; and the Legislative Committee of the Council was instructed to lay the matter before the Ontario Legislature for sanction, and also to bring the proposition before the General Medical Council of the United Kingdom. When Ontario falls in line that will make five provinces in Canada having reciprocity with the motherland—namely, Prince Edward Island, Nova Scotia, New Brunswick, and Quebec. It will only remain then for the four western provinces to complete the arrangement for all Canada.

The Canadian Medical Profession and the War.

It is reported that already Canada has 160 medical men serving the Empire either in England or at the front; and many more are in line for the front with Canada's second contingent. Many of the leading men have volunteered for service, and others have actually taken training. Altogether in Toronto, after the second contingent has been supplied, there is a waiting list of nearly 200. McGill Medical Department will send in the spring a complete hospital staff from the members of the medical faculty and the student body, the nurses being selected from the various hospitals of the city. Dean Birkett will be in command. Queen's University Medical Department, Kingston, Ontario, has also offered a complete general hospital. And now comes another offer from the French-Canadian medical men and students at Laval University, Montreal, for still another general hospital. Not only for active service, but for relief, the medical profession of Canada is well to the fore. An example of what medical societies are doing is seen in the case of a recently organised society in Toronto, the Æsculapian Club, of some 70 members. This society has practically donated all its reserve funds: to the Patriotic Fund, \$100; Ladies' Comforts for Soldiers Fund, \$50; Belgian Relief, \$200; and for surgical supplies to wounded in Northern France and Belgium, \$50.

Toronto University and German Professors.

The University of Toronto has been very much in the public eye during the past two or three months owing to having retained on its teaching

staff three German professors. One of the governors, a prominent financier, died suddenly, but left a letter which deprecated retaining these professors on the staff in war time, or of even permitting them to retain their connexion with the University, although released from their duties on full pay. Still another leading financier and public man, Sir Edmund Osler, protested, and resigned over the matter. The result has been the departure of two of the German professors for the United States, whilst the third remained in Toronto and took out naturalisation papers. So far that professor has been allowed to provide a substitute. This has brought the president of the University, whose rule is practically predominant, owing to recent legislation, into difficulties.

Queen's University and the War.

When the war began no university in Canada responded to the call so promptly or did so well as that of Queen's at Kingston. This was due to the splendid work of the Faculty of Applied Science. A company of engineers was sent to Valcartier, which was the only organised contingent at that camp. Of the work they did there professional soldiers and others qualified to speak have done so in the highest terms. With the second Canadian contingent another well-trained corps will go, being again the only Canadian university to send an organised unit. Of the 80 members of this unit 70 are members of the Kingston School of Mining, the other 10 being picked from the Faculties of Arts and Medicine.

Jan. 27th.

Correspondence.

"Audi alteram partem."

THE VALUE OF TINCTURE OF IODINE AS A BACTERICIDE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Jan. 2nd Dr. Alexander Brown asks if the tincture of iodine, or a 2 per cent. solution, can destroy bacteria and their spores. Since there are several hundred varieties of bacteria recorded as excitants of disease, and as there may be wide differences in their resistance to antiseptics, much more experimental work must be undertaken before a comprehensive answer to Dr. Brown's inquiry can be given. The following experiments, which I made two years ago, though they offer a very partial answer to the question, may be of interest at the present moment. I had been asked by Dr. J. R. Bentley, of Limpsfield, to suggest a douche for a case of cystitis. The patient had had his prostate removed, to his great relief, but his cystitis persisted despite a partial relief from an autogenous vaccine of the *B. coli* present in his urine. The failure to clear up the infection was attributed to the sacculated condition of the bladder. An emulsion of living *B. coli*, obtained from a catheter specimen of the urine, was divided into six equal portions. To each portion an equal volume of solution of tincture of iodine in varying strengths, distilled water being the diluent, was added. Thus—

Tabule No. 1	= 2%	tincture of iodine in distilled water.
" No. 2	= 1%	" " " "
" No. 3	= 0.5%	" " " "
" No. 4	= 0.25%	" " " "
" No. 5	= 0.125%	" " " "
" No. 6	= 0.0625%	" " " "

These tubules were at once placed in the incubator at 37° for five minutes only and directly afterwards an equal volume from each was pipetted into a tube of gelose. The inoculated culture tubes were incubated at 37° for 24 hours and no growth occurred in any of them. The deduction was that the tincture of iodine solution, in each of six strengths (2 per cent. down to 0.0625 per cent.), had proved an effective bactericide. Irrigation of the bladder with 0.2 per cent. strength was recommended. This proved to be quite unirritating, and cultures taken on the following day showed marked diminution in the number of colonies of *B. coli*.

The coliform group of bacteria is a very large one, very widely spread, and plays a most important rôle in many infections, though perhaps not often the leading part. Its vitality in most strains is above that of many other common pathogenic microbes. Yet its resistance, if one may safely argue from the above tests, to iodine solutions falls far below that strength (tincture, or 2 per cent. solution) generally employed by surgeons.

Some years ago I had considerable experience of very severe accidents amongst the Durham miners. Extensive lacerated wounds, always badly contaminated with the highly septic pit dust, were very frequent, and I generally brushed them over freely with tincture of iodine. Where this was done subsequent occurrence of suppurating cellulitis was very rare. For bad compound fractures I preferred to rely upon free irrigation with 1 in 5000 solution of perchloride of mercury. The latter solution never let me down in major midwifery operations, under the most unfavourable sanitary conditions, even when puerperal septicæmia was epidemic in the district, provided that the uterus and vagina were thoroughly irrigated at the conclusion of the labour. When, in deference to various authorities, who said that perchloride was futile because it formed a surface coagulum, I abandoned my routine for other antiseptics I not infrequently had serious trouble.

With regard to the action of iodine upon spores, my experience is limited to a few of the common, innocuous bacteria of the spore-producing species. Some of the *B. vulgatus* family occur not infrequently as contaminations in the preparation of vaccines from throat cultures or from pyorrhæa. For three years I have made a practice of adding 0.5 per cent. of tincture of iodine to the emulsions after heating for an hour at 55° on three successive days. Subsequent cultures have invariably proved sterile, and I have attributed that sterility to the action of the iodine, since spores would probably have survived the comparatively low heat used.

I am, Sir, yours faithfully,

H. LYON SMITH, M.D. Durh.

Bentinck-street, W., Feb. 8th, 1915.

LICE AND RHEUMATISM AMONGST SOLDIERS.

To the Editor of THE LANCET.

SIR,—I have read with very great interest Sir Lauder Brunton's letter with this title in your issue for Feb. 6th, but among the remedies for body lice he does not mention paraffinum liquidum (B.P.), which can also be obtained in a crude state. The B.P. preparation is very largely used at our cleansing station in Poplar in the treatment of verminous children. After the bathing of the children liquid paraffin is

smear on the heads so that any lice may be killed as they are hatched from nits which have not been removed by combing the hair with a fine tooth comb dipped in methylated spirit or by application of the same by dabbing any discovered nits. If a little mercury perchloride, half grain to the ounce, is added to the spirit it makes the application more effectual. A very common household method of loosening the nit is the application of vinegar or acetic acid. Respecting Dr. S. Monckton Copeman's article on p. 273 of the same issue, I have known many mothers use the ordinary paraffin, but this is dangerous, the flash point being low, but that of liquid paraffin (B.P.) is high. Two handbills are circulated in the borough of Poplar re body and head lice, and the liquid paraffin (B.P.) is not only recommended for the head, but also, when dried after a bath, for gently rubbing over the whole body, except the face, leaving a thin layer of the liquid.

I am, Sir, yours faithfully,

FRED. WM. ALEXANDER,

Medical Officer of Health, Metropolitan Borough of Poplar.
Bow-road, E., Feb. 6th, 1915.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 6th you publish a letter from Sir Lauder Brunton under the above heading in which he enumerates 11 drugs as useful for the cure of the former and sulphur powder applied externally as a remedy for the latter disease.

In my book on "The Treatment of Diseases of the Skin," under the chapter on pediculosis, the following paragraph occurs on p. 169: "Sulphur wrapped up in a piece of flannel or in a porous bag and worn about the person next to the skin acts in many cases as a preventative." If our soldiers resorted to this very simple remedy they might remain free from both complaints.

I am, Sir, yours faithfully,

W. KNOWSLEY SIBLEY.

Cavendish-place, W., Feb. 7th, 1915.

THE SHORTAGE OF RESIDENT MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 6th Mr. W. M. Wilcox, secretary of the East London Hospital for Sick Children, suggests that there is a shortage of resident doctors. Perhaps if a reasonable payment be given the very "alleged" shortage will disappear. The local educational authorities now pay not less than £250 to freshly qualified doctors, while the equally fresh tuberculosis medical officers under the National Insurance Acts receive up to £350. I am told that about 3000 doctors have entered their names at the Admiralty and War Office. Each accepted will receive about £1 per day on service. May I add that many of the steamship companies are now paying their surgeons £15 to £20 per month, a bonus of £50 per annum, the right to charge fees to saloon passengers, and admission to membership for the pension fund. The present resident doctor at voluntary hospitals is paid a lost-dog's wage and is financially on the same degrading level as the Poor-law medical officer. Even residents in Poor-law infirmaries now obtain over £250 per annum, extra fees, with board, lodging, and washing—i.e., about £450. Let Mr. Wilcox attempt to do away with the dog-in-the-manger policy of doctors now acting as visiting

men to the voluntary hospitals and double the staff of such. This number can be increased by 10,000 in one week by appointing local district visiting staffs. At Liverpool the majority of the visiting doctors are entitled to charge full fees to hospital patients occupying pay beds and pay wards. Local doctors will not be excluded from making a fair wage if appointed. Only a little common sense is required to meet the "scarcity of doctors" bogey. Will the "men in possession" agree?

I am, Sir, yours faithfully,

Liverpool, Feb. 8th, 1915.

R. R. RENTOUL, M.D.

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—In Dr. E. G. Glover's communication on this subject in THE LANCET of Feb. 6th occurs the following statement:—

There is one other point which deserves notice, although perhaps it is a minor one, and it is that the dangers noted after reactions—i.e., extension of disease, increased activity, pleurisy, and pneumothorax—are unfortunately, as the Registrar-General will testify, the dangers of the disease itself.

Such a remark has no bearing on the danger or otherwise of administering tuberculin. No sound critic of tuberculin ever imputed to tuberculin a capacity to do more than increase the disease, and because the disease spreads and produces the above results in many untreated cases, this in no way removes tuberculin from the list of agents which may hasten the above calamities.

I am, Sir, yours faithfully,

Ayrshire Sanatorium, Feb. 6th, 1915. EDWARD E. PREST.

LEECHES AND THE WAR.

To the Editor of THE LANCET.

SIR,—With regard to Mr. J. D. Marshall's offer in THE LANCET of Feb. 6th, it may be of interest to state that leeches of the official variety are obtainable to a limited extent through the ordinary trade channels at a cost less than one-fourth that mentioned by Mr. Marshall for *Limnatis granulosa*. This institution received a small number of leeches of French origin this week.

I am, Sir, yours faithfully,

London Hospital, Feb. 6th, 1915.

F. A. HOCKING.

** But the price of a leech might vary with its capacity.—ED. L.

THE DEARER LOAF.

To the Editor of THE LANCET.

SIR,—As a result of the appearance of your leading article with this title on Jan. 30th, I have been asked by the Corn Products Company, Limited, to forward you some loaves made from a mixture of wheat flour and cornflour. My son, Mr. William C. Jago, who now controls the Jago Laboratories, has had some loaves baked for me in a test bakery. Samples of these, numbered 1, 2, 3, and 4, were forwarded to you yesterday.

The following are particulars of the mixtures from which the respective loaves were made: 1. London Town household flour only, with salt, yeast, and water. 2. Mixture of 90 parts same flour with 10 parts cornflour; in addition gelatinised cornflour at the rate of 4 lb. to the sack of 280 lb., and dry corn starch sugar at the rate of 2 lb. to the sack were used. Other ingredients as before. 3. Mixture of 80 parts same

flour with 20 parts cornflour. Additions, &c., as in No. 2. 4. Mixture of 66 parts same flour with 20 parts cornflour and 14 parts peafLOUR. Additions, &c., as in No. 2. The volumes of the resultant loaves, each made from 560 grammes of the flour or flour mixture, were as follows: (1) 2839 c.c.; (2) 2676 c.c.; (3) 2593 c.c.; (4) 2022 c.c. The mixed flour loaves were all smaller than that from unmixed flour, but in every case they were of fair volume and good open texture. The loaves themselves will, however, best show you the general characters of the resultant bread. I think you will agree that in colour and general appearance Nos. 2 and 3 are fairly equal to No. 1, and would prove quite as digestible. The employment of No. 2 mixture would increase the available supply of breadstuffs from 100 parts to 111 parts, while in the case of No. 3 the increase would be from 100 parts to 125 parts.

In the case of No. 4 the object of the experiment was somewhat different—viz., to prepare bread that should have about the same protein value as the white flour used in the preceding mixtures. A sample of the flour yielded 10 per cent. of protein on analysis. Taking the protein content of peafLOUR at 25 per cent., a mixture of two parts of peafLOUR to three parts of cornflour would also contain 10 per cent. of protein, and might therefore be used in any desired proportion with the wheaten flour without altering its protein content. In the case of No. 4, two parts of wheaten flour were taken to one part of the pea and corn flour mixture. This represents a somewhat large addition to a flour which, to start with, was somewhat on the weak side. The dough was naturally very friable in the handling, but nevertheless made a fair loaf. Again, the sample itself will best show you the nature of the bread. (In all cases please make allowance for the staleness and effects of packing on the loaves when they reach you.) I think you will agree that this bread is not at all unpleasant in either appearance or flavour. Judging from its physical character I should say such bread would be very digestible and its proteins capable of very good absorption. In all probability the ratio of absorption would be slightly higher than is the case of the white bread. The use of such a mixture, if necessity arose, would raise the amount of available bread-stuffs from 100 to 150 parts and with no loss of nutritive value.

At present market prices the No. 4 mixture works out slightly lower in price than the flour. There is not likely to be any shortage in the world's supply of cornflour, and in addition to peas there are lentils and soya beans to draw on as auxiliary sources of protein. The latter especially is exceedingly rich in flesh formers, and yields a flour which is light in colour and of pleasant flavour.

I am, Sir, yours faithfully,

Hove, Sussex, Feb. 6th, 1915.

WILLIAM JAGO.

** The results are quite interesting. The loaves received appeared to us to be quite acceptable in regard to texture, flavour, and appearance.—ED. L.

LONDON UNIVERSITY EXAMINATIONS AND THE NEW PHARMACOPOEIA.—The regulations for the second examination for medical degrees, Part II., have been amended by the insertion of the following footnote: At the examinations in pharmacology held in March and July, 1915, students will be permitted to base their replies either on the old or on the new edition of the Pharmacopoeia provided that they shall be required to state on which edition such replies are based. In and after March, 1916, replies must be based on the new edition of the Pharmacopoeia.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE Fund has during the week received a fair number of subscriptions, conspicuous among them being a cheque from the Ontario Medical Association for £102 13s. 4d.

The Liverpool subscriptions, which for the present remain in the hands of the Liverpool Medical Institution, have continued to come in, and a vigorous start is being made in Manchester under the auspices of a strong local committee.

CENTRAL EXECUTIVE COMMITTEE.

Certain cases of distress have been relieved immediately, on the representation of Dr. Clément Philippe, the President of the Société Belge de Médecine et de Pharmacie en Angleterre, and there has been some success in finding work for Belgian practitioners, under the recent privilege of British registration. It seems doubtful whether the General Medical Council will be able to reduce or remit the fees of Belgians desiring to register, and it may devolve upon the Fund to advance the money in some cases. There was no Belgian doctor found to fill a post where a single man was required, all the available Belgian practitioners being married. The receipts of garments, both for men and women, at 3, Hyde Park-street, London, W. (Dr. Philippe's house, kindly lent for the purpose), have been satisfactory, and the hours of distribution have been arranged as follows: Wednesday, 10 A.M. to 12 noon for men, and Friday between the same hours for women.

The case of surgical instruments designed for Belgium, and reported last week as being at the Tunnel Wharf, Rotherhithe, has been forwarded to Brussels, *via* Rotterdam, in the s.s. *Vesuvie*, which sailed on Feb. 1st.

THE MANCHESTER COMMITTEE.

An important committee has been formed at Manchester, and a circular is on the point of being issued to the local members of the medical and pharmaceutical professions setting out the position of their Belgian colleagues. The circular is signed by Dr. Alfred Brown, President, Manchester Pathological Society; Mr. J. Gray Clegg, President, Manchester Clinical Society; Dr. Archibald Donald, President, Manchester Medical Society; Mr. James Grier, President, Manchester Pharmaceutical Association; Dr. T. Arthur Helme, President, Manchester Medico-Ethical Society; and the following members of the central committee: Sir William Milligan, Professor G. Elliot Smith, and Mr. William Thorburn. Dr. E. M. Brockbank, Northern Assurance Buildings, Albert-square, Manchester, and Mr. Tom Miller, pharmacist, 5, Yarrow-street, Whalley Range, are acting as honorary secretaries.

Subscriptions may be sent to either of the secretaries, who will acknowledge their receipt and pass them on to the Central Fund. They will also be acknowledged in the medical and pharmaceutical papers. Cheques should be crossed "Lancashire and Yorkshire Bank, Limited."

Contributions of surgical instruments likely to be of use to the Belgian doctors may be sent to the Library of the Medical Society, University of Manchester, where they will be sorted and sent on to London.

The Manchester Committee propose also to appeal to the public through the lay papers.

THE FUND OF THE LIVERPOOL MEDICAL INSTITUTION.

The following is the second list of subscriptions which have been collected by the Liverpool Medical Institution:—

	£	s.	d.		£	s.	d.
Dr. G. A. Grace-Calvert	5	5	0	Dr. C. Alston Hughes	1	1	0
Dr. John E. Gemmell	5	5	0	Dr. W. Hardy Fleetwood	1	1	0
Dr. R. Wyse	5	0	0	Dr. R. Paterson	1	1	0
Dr. A. S. Parkinson				Dr. A. F. Seacome	1	1	0
(second subscription)	4	4	0	Dr. W. Macfie Campbell	1	1	0
Dr. J. E. Stott	2	2	0	Dr. John Robson	1	1	0
Dr. J. C. M. Given	2	2	0	Dr. H. Wycliffe Fisher	1	1	0
Dr. A. A. Mussen	2	2	0	Dr. David Morgan	1	1	0
Dr. A. C. E. Harris	2	2	0	Dr. W. Sanderson	1	1	0
Dr. A. C. Wilson	2	2	0	Dr. O. F. Evans	1	1	0
Dr. Walter C. Oram	2	2	0	Dr. F. F. German	1	1	0
Dr. J. F. Gordon	2	2	0	Dr. Albert E. Davis	1	1	0
Dr. T. Glynn Morris	2	2	0	Dr. Isaac Harris	1	1	0
Dr. T. B. Grimsdale	2	2	0	Dr. A. A. Meeson	1	1	0
Dr. A. E. Hawkes	2	2	0	Dr. E. I. Claxton	1	1	0
Dr. W. Morland Hocken	2	2	0	Dr. R. G. Sheldon	1	1	0
Dr. G. S. Stansfield	2	2	0	Dr. W. Cash Reed	1	1	0
Dr. Harry Holmes	2	2	0	Dr. K. V. Trubshaw	1	1	0
Professor J. M. Beattie	2	2	0	Dr. R. Lucius Wood	1	1	0
Mr. Arthur Evans	2	2	0	Dr. J. J. Tisdall	1	1	0
Dr. Harriet Jones	2	0	0	Dr. F. Ingall	1	0	0
Dr. Douglas Moffatt	1	1	0	Dr. A. C. Lewis	0	10	6
Dr. Bennett Jones	1	1	0	Dr. N. H. Blair	0	10	6

The Liverpool Belgian Doctors' Relief Fund is intended for the relief of Belgian doctors, and we are informed that the Liverpool Chemists' Association is forming a local fund for the relief of their professional colleagues. The money in the hands of the Liverpool Medical Institution amounted on Feb. 4th to £382 10s. 3d. The Fund is still open, and subscriptions should be sent to Dr. T. R. Bradshaw, at the Institution, 65, Rodney-street, Liverpool.

THE DURHAM AND NEWCASTLE DISTRICT.

Dr. A. S. Percival, 17, Claremont-place, Newcastle-on-Tyne, who is acting as one of the joint secretaries of the movement in this district, has written to the constituency in the following terms:—

"We are under a lasting obligation to Belgium for her magnificent stand against the German invaders; indeed, it is an obligation that can never be fully repaid, and it should be regarded as a privilege to have this opportunity of showing our sympathy with our fellow practitioners. Chiefly with this end in view a meeting will be held at the College of Medicine, Newcastle-upon-Tyne, on Wednesday next, Feb. 17th, at 4 P.M. An address will be given by Professor Jacobs of Brussels, who will give evidence of certain startling facts that for ruthless and savage barbarity have no equal. All doctors and pharmacists are invited to attend the meeting, at which it is proposed to form a committee for dealing with Belgium's appeal. Meantime, any subscriptions that are sent to me in aid of the Fund will be gratefully acknowledged and duly reported in the medical journals."

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, amounting to £5000, and not including money received by the Scottish or Irish Funds, are as follows:—

	£	s.	d.		£	s.	d.
Mr. W. Thomson Walker	5	5	0	Dr. Lawrie...	5	0	0
Brussels Medical Graduates' Association (per Dr. Major Greenwood, Treas.), third donation	2	2	0	Dr. Robertson...	5	0	0
Dr. Lauriston Shaw	5	5	0	Dr. J. Fort...	3	3	0
Miss Lillian T. Rowland, M.B.	2	2	0	Dr. W. White...	3	3	0
Professor J. A. Kynoch	2	2	0	Dr. Olive Claydon...	3	0	0
British Milk Products Company	73	19	9	Dr. Cammock...	2	2	0
Dr. J. Duncan Kendry...	1	1	0	Dr. Fawsitt...	2	2	0
Dr. Burra (per Dr. Larking)	1	0	0	Dr. Henderson...	2	2	0
Oldham Medical Society, collected by (per Dr. F. L. Pochin)—				Dr. Hutton...	2	2	0
Oldham Medical Society	10	10	0	Dr. Kinnear...	2	2	0
				Dr. Yates...	2	2	0
				Dr. H. J. Gill...	2	0	0
				Dr. Anderson...	1	1	0
				Dr. Corns...	1	1	0
				Dr. Doble...	1	1	0
				Dr. Fulton...	1	1	0
				Dr. Godson...	1	1	0
				Dr. Heap...	1	1	0

The War.

THE TROOPS AND ANTITYPHOID INOCULATION.

REFERENCE is made in our Parliamentary Intelligence this week to a leaflet on the subject of anti-typhoid inoculation which is being distributed to the troops. The leaflet is addressed "To All Soldiers," and Lord Kitchener himself supplies a preface in these words:—

"I commend to the careful attention of every Soldier the following statement, to which, in the interests of the health of the Army, I attach great importance.—KITCHENER, F.M."

The statement is as follows:—

In every campaign typhoid fever is a serious element. In the South African War there were many more casualties from typhoid fever than from wounds.

In the present war the best is being done to prevent typhoid fever by extreme precautions in the matter of water-supply, as well as other sanitary measures, but in spite of this a number of men have been affected by the disease.

Inoculation Gives the Body Power to Resist Infection.

It is a means of protection in the efficiency of which those who have studied the question have complete confidence.

Inoculation has nothing to do with vivisection.

The great value of inoculation is shown clearly in the following figures:—

Of the 421 cases in the present campaign among British troops, 305 cases were in men who were NOT INOCULATED within two years.

In the 421 cases there have been 35 deaths

Of these deaths 34 were men who had NOT BEEN INOCULATED within two years.

ONLY ONE DEATH OCCURRED AMONG PATIENTS WHO WERE INOCULATED, and that man had only been inoculated once, instead of the proper number of times—namely, twice.

For your own sake, for your country's sake, and for the sake of the Army you should not fail to avail yourself of the protection secured by this simple, safe, and well-tested measure.

Medical officers are always ready and anxious to inoculate any soldier at any time, and the greatest care is taken in doing so. With proper care it has never been known to do a man harm.

The statement, which seems to be worded in just the right way to impress a soldierly audience, is signed by Sir Thomas Barlow, President of the Royal College of Physicians of London; Dr. A. H. Freeland Barbour, President of the Royal College of Physicians of Edinburgh; Sir W. Watson Cheyne, President of the Royal College of Surgeons of England; Dr. E. MacDowel Cosgrave, President of the Royal College of Physicians of Ireland; Mr. F. Conway Dwyer, President of the Royal College of Surgeons in Ireland; Mr. J. W. B. Hodson, President of the Royal College of Surgeons of Edinburgh; and Sir Frederick Treves, Sergeant Surgeon to H.M. the King.

THE CASUALTY LIST.

The official casualty lists published since our last issue have contained the name of one medical officer, Captain James Alexander Terras Bell, M.D., New Zealand Medical Corps, reported as having died in Egypt.

MEDICAL PRECAUTIONS AGAINST AIR RAIDS.

In an annotation with the above title in THE LANCET of Jan. 9th the surgical aspects of an air raid upon London were briefly discussed, and it was stated that a scheme of preparation against such an outrage had been carefully thought out. With the sanction of the military and police authorities this scheme has now been elaborated and

Mr. J. W. Leach	1	1	0	Dr. I. B. Muirhead	3	3	0
Dr. McGowan	1	1	0	Dr. E. J. Moore	1	1	0
Dr. Martland	1	1	0	Dr. J. Maguire	1	1	0
Dr. Pochin	1	1	0	Dr. A. L. Marshall	5	0	0
Dr. Radcliffe	1	1	0	Dr. J. O'Dwyer	1	1	0
Dr. Ross	1	1	0	Dr. David Petty	1	1	0
Dr. W. B. Yates	1	1	0	Dr. H. C. Powell	1	1	0
Dr. R. Bowes	1	0	0	Dr. J. H. Porter	1	1	0
Dr. H. Gill	1	0	0	Dr. H. Vaughan Pryce	1	1	0
Dr. Broomhead	0	10	6	Dr. T. Rushbrooke	1	1	0
Dr. Mawdsley	0	10	6	Dr. B. Rowlands	2	2	0
Dr. Wilkinson	0	10	6	Dr. David Ross	1	1	0
Dr. Wood	0	10	0	Dr. A. H. Rideal	1	1	0
Dr. Thompson	0	5	0	Dr. A. G. Southcombe	1	1	0
Dr. A. J. Turner	2	2	0	Dr. Montague Smith	1	1	0
Capt. Shingleton Smith,				Dr. Rowland Smith	1	1	0
I. M. S.	30	0	0	Dr. A. T. Swan	1	1	0
Messrs. Dolbear and				Dr. R. Taylor	1	1	0
Goddall	1	1	0	Dr. Wm. Teynton	1	1	0
Dr. Alex. MacLennan	1	1	0	Dr. W. Whitelaw	1	1	0
Mr. J. P. Ellerington				Dr. A. W. Webb	0	10	6
(La Pharmacie Fran-				Dr. Elizabeth Wilks	2	2	0
caise (fourth donation)	5	0	0	Dr. T. C. Winn	1	1	0
Dr. H. J. Roper	2	2	0	Dr. S. Wilson	1	1	0
Dr. G. Ransford	2	2	0	Dr. John Young	1	1	0
Dr. S. E. Whitnall	0	10	6	Dr. A. C. Williams	1	1	0
Lieutenant-Colonel D.				Dr. W. J. O. Ray	1	1	0
G. Crawford, I.M.S.	5	0	0	Eastern Hospital,			
Sir Donald MacAlister,				Homerton-grove (per			
K.C.B.	10	0	0	Dr. J. Whitaker)			
Ontario Medical Asso-				Dr. J. Harvey	1	0	0
ciation (per Dr. J. Gibb-				Dr. J. Enright	1	0	0
Wishart)	102	13	4	Dr. M. Mayers	1	0	0
Dr. James Arthur	1	1	0	Dr. J. Whitaker	1	0	0
Anon. (per Mr. J. Y. W.				Corner Whist Club (per			
MacAlister)	2	8	0	Dr. Des Voeux)	5	0	0
Messrs. Jay, Richard				Dr. F. D. Bennett	2	0	0
Attenborough & Co.,				Mr. Alban Doran	1	1	0
Limited	1	1	0	Dr. J. B. Martin			
Dr. R. Prosser White	2	0	0	Kennedy	1	1	0
Mr. Lawrence Jones	3	3	0	Dr. H. Willingham Gell	2	2	0
Lincoln Chemists' Asso-				Mr. Harold Barwell	3	3	0
ciation (per Mr. John				Dr. William Clow	1	1	0
Hague, Treas.)	3	3	0	Dr. E. M. Skeete	1	0	0
Dr. E. G. Boon	1	1	0	Mr. W. H. Battle	10	0	0
Mr. H. Betham Robin-				Mr. Somerville Hastings	3	3	0
son	2	2	0	Birmingham Local Com-			
Staffordshire Branch,				mittee (per Dr. Robert			
South Staff. Division,				Saundby, Hon. Sec.),			
B.M.A. (per Dr. H. C.				sixth donation—			
Mactier, Hon. Sec.)				Dr. W. H. Pollard			
Dr. J. A. Codd	1	1	0	(Ambulance Class fee)	5	5	0
Mr. F. W. Joynes	1	1	0	Dr. F. R. Sutton	2	2	0
Mr. H. Ruskin Han-				Dr. D. S. Murray	1	1	0
cock	1	1	0	Dr. Frank Hues	1	15	0
Dr. David Mann	1	1	0	Dr. R. S. Ellis	1	1	0
Dr. Edith Serjeant	1	1	0	Collected by Mr.			
Dr. H. C. Mactier	1	1	0	Pollard, of Worcs.—			
Dr. Irene Bastow	1	1	0	Mr. T. P. Gostling	1	1	0
City Division, B.M.A.				Dr. T. P. Cavenagh	1	1	0
(per Dr. C. F. Hadfield,				Dr. H. F. Seymour	1	1	0
Hon. Treas.)				Dr. C. Pollard (addit.)	1	1	0
Dr. J. O. Adams	5	0	0	Dr. H. A. Watson	0	10	6
Anon.	1	1	0	Dr. A. H. Williams	0	10	6
Dr. Frank Butler	1	1	0	Mr. C. S. Legge	0	10	6
Dr. Effie Brander	1	1	0	Dr. G. W. Crowe	0	10	6
Dr. N. Benoly	1	1	0	Dr. S. W. Coombs	0	10	6
Dr. Oliver Beddard	1	1	0	Dr. T. Bates, jun.	0	10	6
Dr. Reginald Brown	1	1	0	Dr. R. T. Slinger	0	10	6
Dr. E. H. Crisp	5	0	0	Dr. D. Bower	2	2	0
Dr. Leslie Durno	2	2	0	Cardiff Pharmacists'			
Dr. Cuthbert Dixon	1	1	0	Association (per Mr.			
Dr. J. C. Dunn	1	1	0	W. R. Williams)	25	0	0
Dr. I. Dorran	1	1	0	London Pharmaceutical			
Dr. C. E. Evans	1	1	0	Association "Script"			
Dr. G. E. Froggatt	1	0	0	Shilling Fund (per Mr.			
Dr. E. W. Goodall	2	2	0	H. Skinner)	20	6	6
Dr. Major Greenwood	1	1	0	Public Pharmacists' and			
Dr. A. Withers Green	1	0	0	Dispensers' Associa-			
Dr. C. F. Hadfield	1	1	0	tion (collected by Mr.			
Dr. J. W. Hunt	1	1	0	G. W. Gibson)	2	10	0
Dr. J. Moore Hall	1	1	0	Mr. A. Hagon	1	1	0
Dr. G. B. Hicks	1	1	0	Mr. R. T. Clarke	0	10	6
Dr. J. Jaffe	1	1	0	Miss E. Hardwicke	0	10	0
Dr. H. L. Jenkins	1	1	0	Miss M. Gibson	0	5	0
Dr. Gerald Johnston	3	3	0	Mr. R. J. Perkin	0	5	0
Dr. A. D. Lewis	1	1	0	Mr. A. Hodgson	1	1	0
Dr. G. Lowsley	1	1	0	Dr. G. E. Armstrong	20	0	0
Dr. J. J. Macnaboe	1	1	0	Dr. A. H. Martin, Presi-			
Dr. G. I. Moriarty	0	10	6	dent, Postal Medical			
Dr. J. Mansie	1	1	0	Officers' Association of			
Dr. T. W. Maddison	1	1	0	England and Wales	1	1	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund and crossed Lloyds Bank, Limited. These will be acknowledged by post direct, and a list will appear in THE LANCET weekly.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges with thanks the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Anonymous, per the Oldham Medical Society; Dr. W. L. W. Marshall, Huddersfield; Dr. G. W. Collins, Wanstead, Essex; Dr. Cosgrave George, Colwyn Bay.

extended to include vulnerable places on the coast. The committee of the Royal Society of Medicine, which has been occupied with the medical side of the matter, has now organised a service of surgeons, anaesthetists, and dressers, ready to proceed at once in self-contained units to any point where their services are required, travelling either by motor-car or by special train according to the needs of the occasion.

THE DISLOCATION OF MEDICAL SERVICE.

A meeting of medical practitioners and senior students was held in the Royal College of Surgeons, Edinburgh, on Monday last, when Mr. Hodsdon, President of the College and chairman of the meeting, spoke forcibly on the situation of civilian practitioners. Many civil practitioners, he said, had attached themselves to various units, and were willing to spend their spare time in military duties, but they were not prepared and did not anticipate that they would be called away from their practice at a moment's notice. At that moment there were men who had not been back to their practice since they were called up during the mobilisation in August. The Scottish Medical Service Emergency Committee had assisted medical men who were with the colours, while at the instance of the General Medical Council the War Office had now made exchanges possible whereby the Scottish practitioner might find himself back in his own town.

Dr. Norman Walker, convener of the Scottish Medical Service Emergency Committee, said that the work of the committee had extended far beyond that of merely introducing assistants or locum tenents to men who wanted them. The dislocation of medical practice in the country had increased, and was still increasing, and if they were to avoid a serious breakdown in the medical service in Scotland they must realise the situation, for more demands would be made upon them, and the supplies would have to be very carefully husbanded if they were to meet that demand. They had to supply recruits for two armies—one the King's forces, and the other the standing army for home defence against the constant enemies, disease and death. It was because doctors were as necessary in the army and navy as engineers, gunners, and air-men that it was incumbent on the medical profession to supply the wants of the King's forces. Something over one-sixth of the medical profession were already serving—nearly 7000 out of a total of 37,000—and more were required, for the day was not far distant when six figures would not cover the number of our forces abroad. Seeking where the additional doctors were to come from, Dr. Norman Walker hoped no licensing body, from a sort of morbid patriotism, would admit to the profession insufficiently trained students. The student's business was to work hard, and the teacher's to give more care to his teaching than he ever gave before, so that the student should complete his course in the shortest possible time and then offer his services to the country if there were no valid reason against this course. But if such reason existed it must be remembered that a man still served his country if, by undertaking the work of one who had gone, he so loyally respected his interests that the other went with an easy mind. But the country districts were crying out for doctors, and before many weeks passed they would be very near the Trade Unionist Paradise—"two jobs for every man." Dr. Norman Walker concluded

by referring to the new Army Order permitting exchanges, and begged that it should be taken advantage of by medical men.

Principal Sir Donald MacAlister acknowledged how cordially, as soon as it understood the difficulty they were in as regards civil practice, the Army Medical Service responded in the only way they were able to respond. It was quite clear that the civil service must dispense with its ordinary superabundance of practitioners if the army was to be supplied, and the question was whether a proper reorganisation of the civil service could be achieved. For the first two or three months it looked as if it could be done without much difficulty, but difficulties that seemed at first not impossible were becoming almost impossible to overcome, and it was quite certain that the civil community would have to do with a good deal less doctoring if they were to keep the army supplied, as it ought to be supplied, with doctors. They had better face the situation now, he urged, before in some areas the medical service altogether broke down. He believed that by a redistribution of their forces there could be provided a respectable medical service for all the civil population, but the worst of it was that while there was a superabundance in some places there was a very deficient service in others. He did not see any other machinery in existence for attempting the difficult problem of organising a redistribution than the Emergency Committee. A certain number of Belgians would be available, and the reciprocal privilege of practising in Belgium after the war would be no small one. He believed there were also coming to this country about 100 Canadian registered surgeons and a certain number from Australia and India.

The gist of an important meeting was to show that the shortage of medical men is expected in the best-informed circles to become more serious.

UNIVERSITY OF LONDON: SPECIAL LECTURES IN MILITARY HYGIENE.—With the concurrence and assistance of the Army Council a course of nine lectures on "The Health of the Army in the Field" will be given at the Royal Army Medical College, Millbank, S.W., by Major P. S. Lelean, R.A.M.C., F.R.C.S., D.P.H., at 5 P.M., on Feb. 22nd, 24th, and 25th, and March 1st, 3rd, 5th, 8th, 10th, and 12th. The course will form an introduction to the problems of hygiene of forces in the field, for (i.) qualified medical men without military experience; (ii.) combatant officers about to proceed to the front; and (iii.) others interested in the subject (provided the accommodation is sufficient). In the allocation of tickets preference will be given in this order. A detailed syllabus will be available for the lectures, at which the following matters will be dealt with: hygiene of active service, sickness in the army, organisation and administration in the field, water and water-supplies, and conservancy on active service. Arrangements will be made, if desired, for visits of inspection to a typical camp. Applications for tickets should be made to the Academic Registrar, University of London, South Kensington, S.W., and be accompanied by remittance of the fee of £1 1s. Applicants should indicate whether the tickets are required for (1) medical men; (2) combatant officers proceeding to the front; or (3) other persons. Tickets will not be despatched before Feb. 15th.

DENTAL AID FOR THE TROOPS.—A circular letter was issued by the War Office to the various commands on Jan. 22nd with reference to the subject of dental aid for the troops. In this it is announced that, as a temporary measure for the period of the present war only, the existing system whereby a sum of money is allotted to each command for the dental treatment of recruits and serving soldiers will be held in abeyance. During the war all dental treatment necessary to render a non-commissioned officer or man fit for service in the field will

be afforded, including the provision of such artificial dentures as may be considered necessary for efficient mastication. The existing limit of one pound (£1) per man may be exceeded in cases where the work necessitates a higher expenditure, provided that in no case is the expenditure to exceed three pounds (£3) per soldier treated without the special authority of the general officer commanding-in-chief. Where available dentists attached to military hospitals will be employed to the fullest extent. For the supply of artificial dentures the following scale of fees is given as a guide to the maximum cost, having regard to the class of work required: (a) Complete upper or lower denture from £2 to £3; (b) complete upper and lower dentures from £4 to £6; (c) partial upper or lower denture, comprising not more than five teeth, about £1 10s., or possibly a little higher.

EDINBURGH IN WAR TIME.—Our Edinburgh correspondent writes: "The Committee of Management of the Triple Qualification of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have announced to students who have undertaken approved service with His Majesty's Forces that applications for partial recognition of such work in lieu of curriculum will be individually considered. Steps will be taken in each case to grant such concessions as appear to the committee to be in accordance with the recommendations of the General Medical Council.—Twenty-nine convalescent sailors from the hospital at South Queensferry, most of whom had been wounded in the recent North Sea fight, were removed on Feb. 3rd by ambulance train to the Marchioness of Bute's auxiliary hospital at Mount Stuart, in the Island of Bute. At Gourock the men were embarked on the Caledonian Company's steamer, the *Duchess of Bute*. Two ambulance wagons were supplied by the Red Cross Society in Edinburgh, and taken by train and boat to Rothesay, for the comfortable conveyance of the seamen to Mount Stuart House. Meals were provided *en route*, cooks being provided on the train by the Red Cross Society. After an appreciable interval, which presumably reflected in some degree the comparatively quiet spell at the front, another hospital train arrived in Edinburgh on the night of Feb. 5th, bearing its burden of 100 wounded soldiers. The wounded were received at the Caledonian Station by the Red Cross workers, with their usual equipment of motor ambulances and motor-cars, and were conveyed to Dalmeny House and the Deaconess Hospital."

A NEW ARMY HUT.—Mr. H. A. Pritchard, A.R.I.B.A., of Cardiff, has designed a hut for the accommodation of soldiers which is now on view at the College of Ambulance, 3, Vere-street, London, W. It is built of wood of standardised lengths, and can therefore be turned out from the saw-mill ready for erection. The outside of the hut is covered with a durable waterproof material which ensures dryness and warmth, and in hot weather would prevent the scorching heat attendant upon corrugated iron. The whole appearance of the hut is like the roof of a dwelling-house, the sides of the roof reaching almost to the ground, whilst at the gable ends are the door and windows at one side and a large window at the other. The hut measures 22 ft. long, 14 ft. wide, and the highest point of the sloping roof is 15 ft. from the ground. The whole hut is raised from the ground some 12 in. on concrete blocks so that there is ample ventilation beneath the oak flooring. The hut can accommodate 14 men, or as many as 16 at an emergency. The ventilation is free and the light ample. The whole hut is collapsible and can thus be easily transferred by road or rail, and can therefore be used by an army on the march as part of its equipment for offices, sleeping accommodation, or for a temporary hospital. The free space in the centre affords room for men to use the hut as a bed-sitting-room. The cost of the hut completed is about £100. There are many ingenious devices which add to the benefits of the hut. Before the door is a "door-mat" consisting of a wooden grill on which the men can get rid of the mud from their boots, which renders huts of this kind like quagmires as a rule. To the upright poles in the hut a movable table is attached, which can be used for a mess-table, or an operating-table if the hut is used as a hospital. Special

arrangements for storing utensils, food, &c., are in evidence above the level of the men's heads. Outside at either end of the hut where the roof slopes to the eaves a wide gutter trough receives the water from the roof and from which the water can be run off, or the whole trough can be lifted, placed on supports, and used for washing purposes by a number of men at a time. Instead of the water being allowed to run down to the eaves and the trough, it can be diverted by placing a wooden rod obliquely across the sloping roof, whereby the water is made to issue at one side of the roof, a few feet above the ground, where it can be collected in basins, pails, &c., for future use. Mr. Pritchard's device seems not only ingenious but eminently useful for practical purposes; and the favourable comments passed upon the hut by officials and visitors on Saturday, Feb. 6th, when the hut was inspected at the College of Ambulance, promise well for its success.

AMERICAN WOMEN'S WAR HOSPITAL.—The American Women's War Hospital at Paignton is being enlarged by 30 beds, bringing the total capacity of the hospital up to 230. This addition has been made possible by utilising the fine Riding School. The new ward will be called "St. George" Ward, after a generous donor to the fund, and when completed will be staffed by English and American nurses, as are all the other wards in the hospital.

A RECORD OF ATROCITY.—In the *Field* this week Dr. Arthur Tacquin, physician-in-ordinary to the King of the Belgians, tells the story of German cruelty, insolence, pillage, and arson exactly as it came under his own eye, with photographs taken by himself. The proclamations which the enemy has scattered through Belgium are many of them given in full in a terrible supplement to the great sporting newspaper, and the editorial summary which introduces the startling pictures and text is a red-hot indictment of German crime written in convincing terms.

Medical News.

UNIVERSITY OF DURHAM (COLLEGE OF MEDICINE), NEWCASTLE-ON-TYNE.—At the annual meeting of the Council of this College held on Feb. 9th an illuminated address, in Latin, was presented to Professor Sir G. H. Philipson, M.D., the President of the College, congratulating him on the completion of his 50 years' service to the College. The address called attention in the following terms to his varied and eminent services: "Quis enim nostrum ignorat te pathologiae doctrinam, medendi scientiam atque usum, epistularum academicarum commercium, totius denique Collegii regimen, pari deinceps cum diligentia et humanitate curavisse?"

DONATIONS AND BEQUESTS.—By the will of the late Mr. William Long, of Gloucester, the testator has left £10,000 to the Gloucester District Nursing Society and £3000 to the Gloucester Provident Dispensary.—The late Mr. William Ransom, of Hitchin, has bequeathed £500 to the North Herts and South Beds Hospital.—The late Major W. Barrett, of Moredon, Somerset, has left by will £1000 to the Taunton and Somerset Hospital for the endowment of a bed.

BADGE FOR THE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the last meeting of the Royal College of Physicians of Ireland the ex-President, Dr. C. E. FitzGerald, asked permission to present to the college an official badge to be worn by the President on ceremonial occasions. He wished to commemorate the fact that in his person the college had for the first time elected an ophthalmologist to its highest office. The college gratefully received the gift.

MEDICAL MAGISTRATE.—Dr. William Dunn has been made a Commissioner of the Peace for the county of Rutland.

Dr. Stanley Riseley, until recently ophthalmic surgeon to the Royal Hospital, Sheffield, has died at the early age of 47.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT is again in session, and it is expected to sit continuously for four or five weeks. All its attention is being given to problems arising out of the war. Matters of party controversy are not being dealt with.

The Inoculation of British Troops.

Very considerable attention has been given in the House of Commons within the past few days to the subject of the inoculation of British troops against typhoid. There are three distinct sets of opinion on the subject. A very large body of members think that all future recruits who join the army should do so on the express condition that they should undergo inoculation, and that all soldiers who are already in the ranks and refuse to submit to the operation should either be allowed to retire or be allocated to home defence work. No uninoculated men should go to the front. The second set of opinion is that the present system of voluntary inoculation should continue, but that every means of persuasion short of coercion should be exerted to induce men to be inoculated. This view admits the value of the operation, but would leave an option with the individual. The third set of opinion is that of the anti-inoculation party, which is very small numerically. Its activities have been directed to drawing attention to cases in which it alleges illegitimate pressure has been exerted on soldiers to coerce them into undergoing inoculation. In these circumstances it is most important to watch the attitude of the Government and of the War Office. Mr. TENNANT, the Under Secretary for War, stated in the House of Commons this week that the evidence was accumulating in favour of the inoculation of our troops. The matter of making it compulsory was under consideration, and he hoped to be able to give a definite answer shortly. Some highly significant statistics showing the beneficial effect of inoculation against typhoid in the present war have been given to Parliament in the course of the last few days.

HOUSE OF COMMONS.

THURSDAY, FEB. 4TH.

Treatment of Mental Strain amongst Soldiers.

Mr. DUNCAN MILLAR asked the Under Secretary for War whether steps had been taken to secure that the treatment of soldiers and sailors suffering from mental strain should be carried out in hospital wards or other institutions not under lunacy administration, so as to avoid sending all such cases, which were not certifiable, to asylums.—Mr. TENNANT replied: Every endeavour is being made to treat patients suffering from traumatic neurasthenia and cases of mental strain in such a manner as to avoid sending those not certifiable into asylums. For this purpose arrangements have been made to treat such cases in certain private and civil hospitals in the United Kingdom, and a Red Cross Military Hospital has been opened in Lancashire for their reception. This latter hospital is administered by and the patients are under the care of medical officers holding commissions in the Royal Army Medical Corps.

Mr. DUNCAN MILLAR: Is the War Office prepared to make a grant for equipment?—Mr. TENNANT: I do not think so.

Inoculation against Enteric Fever.

Mr. LAURENCE HARDY asked the Under Secretary for War whether he was aware of the campaign which was in existence for the purpose of discouraging our soldiers in the new armies from being inoculated against enteric and other similar diseases; whether, in view of the statistics in support of inoculation, as shown during the present war, measures would be at once taken against any organisation which carried on such an agitation; and whether he would consider whether the time had now come when inoculation should be made compulsory for all soldiers proceeding to the front on active service, both for their own sakes and those with whom they were in contact.

Mr. PETO also asked the right honourable gentleman whether inoculation against typhoid fever and vaccination against small-pox would in future be compulsory for all ranks in the military forces of the Crown before they were sent on service over-sea during the currency of the present war.—Mr. TENNANT (replying to both questions) said: The answer to the first point in the question of the honourable Member for Ashford (Mr. L. Hardy) is in the affirmative, and to the second is that it is not proposed to take any action against the organisations referred to. As regards compulsion, I am advised that legislation would be necessary. The introduction of a Bill is not at present contemplated, though this may be further considered should necessity arise.

Pay of Medical Officers in the Territorial Force.

Mr. STEWART asked the Financial Secretary to the War Office whether medical officers in the new army were paid £1 4s. a day, whereas medical officers who had served for years in the Territorial Force, and who had now volunteered for service anywhere, received only 15s. 6d. a day; and whether he could see a way to remedy the grievance of the Territorial service by putting them on the same scale of pay as the surgeons in the new army.—Mr. H. BAKER: I would refer the honourable Member to the answer which I gave to the honourable Member for the Bridgwater Division of Somerset on August 27th last.¹

Pay of Indian Medical Service Officers on Active Service.

Mr. RAWLINSON asked the Under Secretary for India whether his attention had been called to the reduced rate of pay of doctor of medicine officers of the Indian Medical Service who were now on active service with field ambulances; and whether he could see his way to raising their pay to the amount which they would receive if they were working for the Indian Medical Service in India during times of peace.—Mr. C. ROBERTS wrote in reply: Subject to certain exceptions which are at present under discussion with the Government of India, officers of the Indian Medical Service withdrawn from their ordinary duty for active service receive not less than the military pay and allowances ordinarily attached to their rank and position, and in some cases special higher rates provided for field service appointments. The Secretary of State recognises that the rules may sometimes entail loss of emoluments to Indian Medical Service officers withdrawn from civil appointments, but liability to recall to military duty is a well-understood condition of civil employment in the case of the Indian Medical Service, and he sees no sufficient reason for modifying the rules.

MONDAY, FEB. 8TH.

Antityphoid Inoculation in the British Army.

Mr. PETO asked the Under Secretary for War whether he could furnish particulars of any case of death from inoculation against typhoid fever.—Mr. TENNANT replied: So far as the War Office is aware there has been only one death which can be in any way connected with inoculation. This case was that of Corporal Nichols, of the 3rd Battalion (Reserve) City of London Regiment. I stated in this House on Nov. 27th last that the cause of death was pneumonia, but when the death certificate was received it was seen that the cause was given as (1) antityphoid vaccination and (2) pneumonia. The case has been investigated and submitted to Sir William Osler, who considers that death was due to an eight miles march which the man took within 24 hours after inoculation and not to the inoculation directly. Instructions have been given that care must be taken to see that men recently inoculated are not given hard work until their condition justifies their undertaking it without risk.

Mr. PETO asked the Under Secretary for War whether he could state the number of cases of typhoid, and deaths from typhoid, among inoculated men and uninoculated men in the Expeditionary Force from the commencement of the war to a recent date.—Mr. TENNANT answered: Of the 421 cases of typhoid in the present campaign among British troops 305 cases were in men who were not inoculated within two years. In the 421 cases there have been 35 deaths. Of these deaths 34 were men who had not been inoculated within two years. Only one death occurred among patients who were inoculated, and that man had only been inoculated once instead of the proper number of times—namely, twice.

Mr. CHANCELLOR asked the right honourable gentleman whether the punishment for refusing inoculation of men who had fought at the front by depriving them of the five days' leave to visit home which was granted to inoculated men was a form of influence and persuasion sanctioned by the War Office to induce men to undergo an operation which was not compulsory or legally enforceable and to which they had a conscientious objection; and whether men who stood upon the legal right guaranteed by the public announcements of the Minister for War were to be punished indefinitely for doing so by the refusal of the leave granted to others, or whether this action on the part of officers would at once be put an end to by a General Order issued from the War Office.—Mr. TENNANT said in reply: I am not aware of any case where a man returning from the front has been punished in the manner described in the question. The danger of infection being spread in the army by uninoculated men is considerable, and has to be guarded against by precautions being taken as regards granting them special leave. Any General Order will be in this sense.

The Health of the Army.

Speaking on the motion that the Speaker should leave the chair in order that the House might go into committee on army estimates, Mr. TENNANT (Under Secretary for War),

¹ THE LANCET, Sept. 5th, 1914, p. 677.

in the course of his observations, said: I should not like to conclude without saying a few words upon certain aspects of the medical treatment of the wounded in France. I do not think there is much that I can add to the narrative which I gave to the House in November last of the methods adopted by the Royal Army Medical Corps in bringing the wounded from the front to the clearing stations, thence to the base hospitals, and finally home here. Important as those functions are, the prevention of disease is even more important, and that is rightly regarded as the primary function of this corps. I think that I am right in saying that this is the first war in which we have been engaged in which an organised sanitary service has existed. We owe the establishment of this service to my noble friend Lord Haldane. Since its establishment we have been gradually perfecting its organisation during the last five or six years. When we look back to the fact that during the Napoleonic wars only 3 per cent. of deaths among our troops were due to wounds and 97 per cent. due to sickness or disease, and when we also remember the fact that during the Crimean War more deaths occurred from disease during the first three months than during the whole of the rest of the campaign, it is impossible to lay too much stress upon this preventive function of the Royal Army Medical Corps. How has this function been carried out? I have to thank my honourable friend the Member for the Holmfirth Division of Yorkshire (Mr. Arnold) for the very interesting and able report which he made to me after a visit which he paid to Paris, during which he got a great many figures. All the evidence which my honourable friend brought, and which comes to me officially, goes to show that by far the greatest amount of sickness amongst our soldiers at the present moment is due to the wet and the cold. Frost-bite and rheumatism are, I am sorry to say, very prevalent. We have issued from the War Office through the Army Medical Department a small leaflet to officers and non-commissioned officers telling them how to prevent frost-bite amongst their men. My honourable friend reports to me that, assuming the conditions of exposure of officers and men to be identical, frost-bite is three times as prevalent amongst the men as it is amongst the officers. I do not suppose that it is possible to assume that the conditions are quite identical, but you may be certain that the exposure of the men is not three times as great as that of the officers. My honourable friend presumes that this result is due to the officers having better boots, leggings, and equipment generally. If that is so, it proves that there is a certain amount of preventability of frost-bite, and I hope by the steps which we are now taking that this disease may be prevented to a larger extent than has been the case in the past.

The Question of Compulsory Inoculation.

Coming now to the question of enteric fever (continued the right honourable gentleman), I am glad to say that cases of this disease are luckily rare, and they have occurred almost entirely among the uninoculated. The evidence is accumulating in favour of making inoculation compulsory. This is one of those subjects which ought to be settled without prejudice. My honourable friend the Member for Holmfirth, who gave me this most interesting report, strongly holds that inoculation against typhoid ought to be made compulsory. It is for the House to say what they think upon this matter. I gave the House figures to-day on this subject in answer to a question, and they have been published in a leaflet to all soldiers with a prefatory note by the Secretary of State for War (Lord Kitchener), impressing upon all soldiers the great importance of inoculation.

Lord CHARLES BERESFORD: Does every soldier get one?

Mr. TENNANT: Yes, it is sent to every soldier.

Lord CHARLES BERESFORD: Is it put up in the recruiting offices?

Mr. TENNANT: Very likely. I have not time to go in detail into all the preventive measures taken by the Royal Army Medical Corps, but I should like to mention the sanitary squads, the water purifying sections, and the travelling hygiene and bacteriological laboratories, to which I drew attention in my speech in November. This is an entirely new feature, and these branches in particular are doing extraordinary and valuable work. Lastly, the Sanitary Commission sits at the War Office to advise the Secretary of State upon all matters relating to the health of the troops at home and abroad. What I have said relates to the army abroad, and it may be asked what we are doing for the health of our troops at home. Owing to the almost entire absence of the regular Army Medical Service engaged upon field operations certain difficulties have arisen, but thanks to the patriotic eagerness of the medical profession we have been able to obtain a high degree of efficiency. I cannot claim that complete efficiency has been achieved, but day by day the ideal is being approached. The new Army Medical Corps for the new armies are now in course of formation, and I believe they will be able to do excellent work should the occasion arise.

Vaccination of Soldiers.

Mr. TENNANT informed Mr. THOMAS that it was not considered advisable to alter the present rules governing the vaccination of soldiers joining the army.

Territorial Medical Officers.

In reply to Mr. W. GUINNESS, Mr. BAKER (Financial Secretary to the War Office) said: There is no difference in the pay of officers holding temporary and permanent commissions in the Royal Army Medical Corps, Territorial Force. The rate for captain is 15s. 6d. and for lieutenant 14s. a day.

Antityphoid Inoculation in Canadian Contingent.

Mr. TENNANT informed Mr. PETO that 95 per cent. of all ranks of the Canadian Contingent had been inoculated against typhoid.

The Anti-inoculation Campaign.

Sir J. D. REES asked the Attorney-General whether the Government could and would proceed under the Defence of the Realm Act against persons who incite soldiers to decline to submit to antityphoid inoculation.—Sir JOHN SIMON replied: The matter is under the consideration of the military authorities.

Inoculation of Soldiers against Typhoid Fever.

In the course of the debate in committee of supply on army estimates, Mr. CHANCELLOR drew attention to the inoculation of troops. He said that assurances had been given in Parliament by representatives of the War Office that no compulsion should be applied to soldiers to compel them to undergo inoculation. Those assurances had not been reflected in certain instances in the action which had been taken by officers. They had, by depriving men of privileges and in other ways, sought to coerce them to submit to this operation against their wishes. He did not complain about the inoculation of troops, nor did he complain of proper and legitimate methods of persuasion. But he did object most strongly to the coercion and compulsion which had been applied to men who had conscientious objections, and he hoped that officers who exerted compulsion and coercion would be reprimanded. The man had a right to refuse to be inoculated.

Mr. G. H. ROBERTS stated that he had taken part in the recruiting meetings, and he had told men on certain occasions that the Government had given an assurance that inoculation was not compulsory. If it was made compulsory these men should have an opportunity to retire.

Sir HENRY CRAIK protested against the campaign which had been carried on against the inoculation of troops. Inoculation was carried out in the general interest of the health of the troops.

Dr. C. ADDISON (Parliamentary Secretary to the Board of Education) said that he had been asked by the Under Secretary for War to deal with the question of inoculation. Was this thing desirable in itself? Would it prevent the occurrence of typhoid fever amongst our troops abroad to a material extent? Would it reduce the strain on our men? That was the big question. Where inoculations were carried out with care the number of cases who did badly was infinitesimal. Even if a man did die in a particularly vulnerable moment, that would not prove that this was not a preventive against typhoid. We had a great force on the continent of Europe, greater than we ever had before, and after six months, including three months of the most atrocious weather imaginable, there had only been 421 cases of the disease. The fact that the figures were so small was a vindication of the policy of inoculation. It seemed strange how the disease had picked out the uninoculated men in a very careful way. The more the records of this remedy of inoculation were examined the better did it appear. It was never contended that there were no men who were inoculated who would not suffer from typhoid. In time the remedy might be so perfected that it might become absolutely perfect. He was not contending that it had proved perfect now. The point was this: Was it so much of a protection that it diminished disease in our troops abroad that it was worth doing? There had been 58,000 cases of enteric in the South African War. Up to the present in this war there had been 421. Whatever this was due to, it had at least happened, and let them continue this happy conjunction of affairs and hope that it would continue to happen. It was said that a good many men might have their consciences hurt by compulsion. Many people, however, had made it their business to go about spreading leaflets. "Is it patriotic to oppose the vaccination and inoculation of our soldiers?" That question was asked at the top of one of these leaflets. And the answer given was "Certainly it is." That was a campaign against antityphoid inoculation, but it was not against personal rights. After all, there might be in different parts of the country excess of enthusiasm on the part of officers who sincerely believed that the troops which they were now commanding would be safer inoculated than not. If an officer was taking a battalion out to the

front, and if he believed that the burden of transport would be less and that the fighting units at the front would remain more intact because the men were inoculated, one could understand a little excessive zeal on his part in getting the men inoculated. He hoped that honourable Members would not allow this grave question to be clouded over by trivialities. Let them look at it as a whole. What the Government were doing was designed to protect our men against this disease in France, and he was sure that every honourable Member would coöperate with the War Office in placing no undue obstacles in the way. Mr. W. LONG thanked the honourable gentleman (Dr. Addison) for the stand he had taken on this important matter. The Opposition would support the Government in taking the strongest measures in securing the health of our troops in France. If the Government had given a pledge to recruits not to make inoculation compulsory, and if they thought a change of policy was required, then the change of policy should be made at once. Any men who thought that they were aggrieved by making inoculation compulsory should be given an opportunity of retiring or of being retained for home defence.

WEDNESDAY, FEB. 10TH.

Inoculation in the British Army.

In the further course of the debate in Committee of Supply on Army Estimates, Mr. TENNANT (Under Secretary for War) said that evidence was accumulating in favour of the inoculation of our troops against typhoid. In the South African War, out of 21,000 deaths, 8000 were from enteric fever. The Indian figures also were significant. In India, where the troops ran great risk of disease, over 90 per cent. of the army were without compulsion inoculated. In pre-inoculation days up to 2000 cases of typhoid used to occur annually in India, whereas in 1912 the number was only 118 and in 1913 only 85. As to making inoculation compulsory for future recruits and allowing those who had enlisted under the supposed guarantee of the War Office liberty to remain in the army for home defence only, he could give no answer. The matter was under consideration, and he hoped to be able to give a definite answer shortly. The question between the honourable Member for Haggerston (Mr. Chancellor) and himself seemed to be not so much one of medical authority as one of discipline. It was said that whilst it was stated that inoculation was voluntary in fact, a soldier desiring to remain uninoculated was met by the commanding officers of certain units with a form of compulsion which it was almost impossible to resist. It would be almost impossible to persuade the honourable Member that these commanding officers had acted with the best possible motives, believing that the course adopted by the individual was likely to be prejudicial to the great bulk of the men under his command. That was really the whole point. These commanding officers had gone beyond any leave which they had from the War Office. He had caused instructions to be issued to all commanding officers to say that action such as the honourable Member (Mr. Chancellor) had brought to his notice was undesirable, and would, he hoped, not be repeated. He (Mr. Tennant) did not disguise that he felt that there was a real danger in men going on leave uninoculated and returning uninoculated, because they might bring infection to a body of troops. Lord Kitchener felt this so strongly that he was about to issue instructions that leave must be sparingly granted to men who declined to be inoculated.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BIRD, G. A., M.B., B.S., B.Sc. Lond., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
BLUNT, A. L., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.
BONSER, G. A. G., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
BURT, W., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Obstetric House Physician at St. Thomas's Hospital.
CRANSTOUN, G., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.
DAVIES, J. C., M.B., B.Ch. Oxon., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
DOYNE, P. G., M.B., B.C. Oxon., F.R.C.S. Eng., has been appointed Senior Ophthalmic House Surgeon at St. Thomas's Hospital.
ELLWOOD, V. T., M.B., B.Ch. Oxon., has been appointed Junior Obstetric House Physician at St. Thomas's Hospital.
GIMBLETT, C. L., M.B., B.C. Cantab., has been appointed Resident House Surgeon at St. Thomas's Hospital.
GLADSTONE, F. C., M.B., B.Ch. Oxon., has been appointed Resident House Physician at St. Thomas's Hospital.

HEBERT, G. T., M.B., B.Ch. Oxon., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
HUNTER, ANDREW, M.B., Ch.B. Edin., has been appointed to the Chair of Pathological Chemistry in the University of Toronto.
JONES, C. O. H., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.
KENNEDY, F. J. M., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Mountrath District of Queen's County.
MACKENZIE, T. C., M.B., Ch.B. Glasg., has been appointed Assistant Medical Superintendent of the Bury and District Joint Hospital.
MCMILLAN, K. H., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.
MARSHALL, W. H., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at St. Thomas's Hospital.
MILES, S. H., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Ophthalmic House Surgeon at St. Thomas's Hospital.
MILLIGAN, D. S. E., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
RAINE, R. T., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Assistant at St. Thomas's Hospital.
ROMANIS, W. H. C., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.
SAI, P., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
SHARP, J. E., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.
SHELLEY, L. W., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
SPARROW, J. A. G., M.B., B.Ch. Oxon., has been appointed Casualty Officer and Resident Anaesthetist at St. Thomas's Hospital.
STIELL, W. F., M.R.C.S., L.R.C.P. Lond., has been appointed Casualty Assistant at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Senior House Surgeon. Salary £140 per annum, with board, residence, washing, &c.
BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.
BEDFORD COUNTY HOSPITAL.—Temporary House Surgeon.
BENEDEN, KENT, NATIONAL SANATORIUM.—Medical Superintendent. Salary £350 per annum, with house.
BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry.
BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.—House Surgeons, Senior and Junior. Salaries £150 and £130 per annum, with board, residence, and laundry.
BOURNEMOUTH, ROYAL NATIONAL SANATORIUM FOR CONSUMPTION AND DISEASES OF THE CHEST.—Resident Medical Officer. Salary £300 per annum, with board, residence, and laundry.
BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
BRADFORD CITY.—Two positions on Staff of Medical Officer of Health in connexion with scheme of Child Welfare. Salary £350 per annum.
BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with apartments, board, and laundry. Also Junior House Surgeon and Assistant House Surgeon with charge of beds. Salaries £80 per annum, with apartments, board, and laundry.
BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BRISTOL GENERAL HOSPITAL.—Senior House Surgeon. Salary at rate of £200 per annum, with board, residence, &c.
BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Female House Physician. Salary £100 per annum, with board, rooms, attendance, and laundry.
BRISTOL ROYAL INFIRMARY.—Throat, Nose, and Ear House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £100 per annum.
CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
CARMARTHEN JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.
CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.
CHESTER, CITY AND COUNTY OF THE CITY OF.—Assistant Medical Officer of Health. Salary £300 per annum.
CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing. Also Resident Medical Officer. Salary £200 per annum, with board, &c.

COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEDLE-MINDED.—Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.

COVENTRY, COVENTRY AND WARWICKSHIRE HOSPITAL.—House Physician. Salary £110 per annum, with rooms, board, washing, and attendance.

DAGENHAM TEMPORARY SANATORIUM, Dagenham, Essex.—Resident Medical Officer, unmarried. Salary at rate of £300 per annum, and all found.

DERBYSHIRE COUNTY COUNCIL.—Tuberculosis Dispensary Officers. Salary £400 per annum.

DEVIZES, WILTS COUNTY ASYLUM.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, attendance, and laundry.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Female Resident House Surgeon. Salary £100 per annum.

ECCLLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Senior House Surgeon for 12 months. Also House Physician and Assistant House Surgeon for six months. Salary at rate of £250 per annum for senior post and £150 for junior posts, with board, apartments, and washing.

GLAMORGAN COUNTY COUNCIL.—Medical Officer for Inspection of Children in Public Elementary Schools. Salary at rate of £300 per annum.

GLASGOW, ROYAL SAMARITAN HOSPITAL FOR WOMEN.—Resident Medical Officer. Salary £25 per annum.

GOVERNMENT LYMPH ESTABLISHMENT, Colindale-avenue, Hendon, N.W.—Temporary Assistant Bacteriologist. Salary at rate of £300 per annum.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—House Surgeon and Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.

KENSINGTON TUBERCULOSIS DISPENSARY, 119, Ladbroke-grove, W.—Temporary Medical Officer. Salary at rate of £500 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Bacteriologist. Salary £170 per annum.

LINDSEY (LINCOLNSHIRE) COUNTY COUNCIL.—Combined Temporary Assistant Tuberculosis and Assistant School Medical Officers. Salary at rate of £300 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—Two Resident House Physicians for six months. Salary £30 each, with board and lodging.

LONDON HOSPITAL, E.—Assistant Surgeon.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER, MONSALL FEVER HOSPITAL.—Second and Third Medical Assistants. Salary £175 and £150 per annum respectively, with board, lodgings, and washing.

MANCHESTER, VICTORIA MEMORIAL JEWISH HOSPITAL, Cheetham.—Female Resident Medical Officer for six months. Salary at rate of £100 per annum, with rooms, board, and laundry.

METROPOLITAN BOROUGH OF HACKNEY AND STOKES NEWINGTON.—Tuberculosis Officer. Salary at rate of £500 per annum.

MIDDLESEX COUNTY ASYLUM, Napsbury, near St. Albans.—Temporary Assistant Medical Officer. Salary 6 guineas per week, with board, lodging, washing, and attendance.

MILE END OLD TOWN INFIRMARY.—Senior Assistant Medical Officer and Junior Assistant Medical Officer. Salary £200 and £150 per annum respectively, with board, lodging, and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £35 per annum, with board, residence, and laundry.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £103 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £300 per annum.

NORTHAMPTON COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £250 per annum, with board, &c.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry. Also Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

OLDHAM ROYAL INFIRMARY.—Second House Surgeon. Salary at rate of £120 per annum, with board, residence, and laundry.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Surgeon. Salary at rate of £30 per annum, with board, residence, and washing.

PADDINGTON INFIRMARY 285, Harrow-road, Paddington, W.—Two Assistants to Medical Superintendent of Infirmary and Medical Officer of Workhouse for six months. Salary at rate of £250 per annum, with board, lodging, and washing.

PAISLEY, ROYAL ALEXANDRA INFIRMARY.—Resident House Physician.

PRESTON ROYAL INFIRMARY.—Assistant Resident Medical and Surgical Officer. Salary £120 per annum, with board, residence, and laundry.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £150 per annum, with board, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Assistant Surgeon.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary at rate of £300 per annum.

ROYAL ARMY MEDICAL CORPS (TERRITORIALS), THIRD 1ST HOME COUNTIES FIELD AMBULANCE (Maidstone).—Seven Medical Men as Officers.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Afternoon House Anesthetist. Salary £24 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Second Resident Medical Officer. Salary at rate of £100 per annum, with board and washing. Also Temporary Honorary Assistant Physician to Out-patients.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, M.—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

ST. MARY ISLINGTON INFIRMARY, Highgate Hill, N.—Junior Assistant Medical Officer. Salary £140 per annum, with board, residence, &c.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

SALFORD COUNTY BOROUGH.—Assistant Tuberculosis Officer. Salary £350 per annum.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SHEFFIELD CHILDREN'S HOSPITAL.—House Surgeon. Salary £150 per annum, with board and residence.

SHEFFIELD CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—First Assistant Medical Officer, Second Assistant Medical Officer, and Third Assistant Medical Officer. Salary £250, £225, and £200 per annum respectively, with apartments, rations, laundry, and attendance.

SHEFFIELD ROYAL HOSPITAL.—Female Assistant House Surgeon and Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £120 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTON DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, washing, and residence.

SWANSEA UNION INSTITUTION.—Resident Assistant Medical Officer. Salary £295 per annum.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Salary £40, with board and lodging.

WAKEFIELD, CITY OF.—Temporary Assistant Medical Officer of Health. Salary £300 per annum.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anesthetist. Salary £110 per annum, with board, residence, and laundry.

WANDSWORTH UNION INFIRMARY, St. John's-hill, Clapham Junction, S.W.—Assistant Medical Officer, unmarried. Salary at rate of £5 5s. weekly, with board, lodging, and washing.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary at rate of £200 per annum, with board, apartments, and laundry.

WEST BROMWICH AND DISTRICT HOSPITAL.—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £100 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WHITCHAPEL UNION INFIRMARY, Vallance-road, E.—Second Assistant Resident Medical Officer. Salary £200 per annum, with rations, apartments, and washing.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing. Also House Surgeon. Salary £170 per annum, with board, apartments, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Lerwick, in the county of Shetland; at Newent, in the county of Gloucester; and at Stewartstown, in the county of Tyrone.

Births, Marriages, and Deaths.

BIRTHS.

BIDWELL.—On Feb. 4th, at Worthing-road, Southsea, the wife of Fleet-Surgeon Lawrence Bidwell, R.N., of a son.

HAYDEN.—On Feb. 4th, at Wymering-mansions, W., the wife of Captain A. F. Hayden, M.B., F.R.C.S., I.M.S. (ret.), of a son.

JORDAN.—On Feb. 4th, at 13, Upper Wimpole-street, W., to Dr. and Mrs. Alfred C. Jordan, a son.

MARRIAGES.

CUNNINGHAM—NEAL.—On Feb. 2nd, at St. Augustine's, Highbury New Park, Frederick Hugh Lester Cunningham, M.R.C.S., L.R.C.P., R.N., to Marguerite Isabel, younger daughter of Mr. and Mrs. John Neal.

HILL—TROLLOPE.—On Feb. 6th, at All Saints', Banstead, Lieutenant F. T. Hill, R.A.M.C., to Ruth Madeline, eldest daughter of Howard W. Trollope, of Banstead, Surrey.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

DANGEROUS FADS.

To the Editor of THE LANCET.

SIR,—I was really taken aback at seeing in one of the recent numbers of *Punch* the advertisement of a baseless campaign that is being waged against vaccines in general and antityphoid in particular.

To us who hold England up as an example, it is hard to realise that there should still exist in a civilised country like yours people ignorant enough to publish and sustain the senseless principles contained in the aforesaid advertisement. And what I think makes that calumnious campaign still worse, under the present circumstances, is the anti-patriotic terms in which it is written.

I think it is about time English people woke up against many such dangerous fads as have been taking root during recent years, such as this one, the antivivisection, and even vegetarianism, and the abuse of other diet fads. Let us hope now that there are more serious things to turn one's thoughts to people will give up brooding over such nonsensical stuff.

I am, Sir, yours faithfully,

Oviedo, Feb. 3rd, 1915.

JAMES B. VILIESID.

ANTIFORMIN.

Mr. Walter J. Matthews, of the laboratory department at the Bristol Municipal Tuberculosis Dispensaries, points out that a perfectly efficient substitute for antiformin hitherto supplied from Germany may be made by passing chlorine into 15 per cent. sodium hydrate to nearly saturation. The chlorine may be prepared by adding pure hydrochloric acid to manganese dioxide. To make one litre 1 lb. of pure acid (specific gravity 1.16) and about 6 oz. of manganese dioxide are needed. The manganese dioxide is placed in a large flask and the acid gradually added through a thistle funnel, warming very gently. The chlorine is carried by a delivery tube to the bottom of the soda solution, which is placed in a tall bottle. Enough chlorine has been added when the soda solution acquires the colour of lemonade. The cost of making one litre works out, on Mr. Matthews's estimate, at about 1s. 1d. Antiformin is used in the bacteriological diagnosis of tuberculosis, and its value in this direction has been referred to many times in our columns.

VERMIN IN THE TRENCHES.

To the Editor of THE LANCET.

SIR,—In 1902 or 1903 I read in *Blackwood's Magazine* extracts from the diary of a planter who was wandering alone for several days during the Indian Mutiny. He became infested with pediculi, and after some days of discomfort hit on the idea of shredding a cheroot and steeping it in water. The application of this "tobacco-water" to his body rid him of a nuisance. This might be worth a trial and could, I think, be easily done in the trenches. An ounce of shag soaked in a quart of water for some hours ought to make a fairly strong infusion. One would not expect it to kill the ova, however.

Norman Walker in his "Introduction to Dermatology" writes about pediculi corporis: "Jamieson says that a small bag of sulphur worn round the neck next the skin acts as a practical 'charm.'"

I am, Sir, yours faithfully,

Feb. 6th, 1915.

M.R.C.S. & L.R.C.P.

ATTACHMENTS TO TELEPHONES.

THE following notice in the "London Telephone Directory" may serve as a warning to future inventors, and so prevent fruitless efforts of ingenuity:—"Attention is drawn to the fact that subscribers are being induced to purchase appliances for attachment to telephones on the ground that they improve the service or have some hygienic advantage. As in nearly all cases these attachments have the effect of either damaging the apparatus or impairing its efficiency—in many cases both—subscribers are reminded that under the conditions of their telephone service the use of such appliances or attachments is, in general, prohibited. The sale to the public of certain appliances which have no such prejudicial effect has been sanctioned by the Post Office, and subscribers should, before purchasing any telephone attachments, satisfy themselves that their use has received official sanction. It is the duty of the Post Office engineers to remove any attachments which have not been officially approved."

FEES UNDER THE MENTAL DEFICIENCY ACT.

"DEFICIT" writes: "I shall be obliged if any of your readers can give me an idea as to the fees one should ask as medical officer under the Mental Deficiency Act."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Prof. W. A. Bone and others: Gaseous Combustion at High Pressures.—Prof. W. M. Hicks: The Orbits of a Charged Particle Round an Electric and Magnetic Nucleus.—Mr. S. Chapman: The Lunar Diurnal Magnetic Variation and its Change with Lunar Distance (communicated by Sir F. W. Dyson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawford, Leonard G. Guthrie): at 5 P.M.

At 4.30 P.M. Sir William Osler will show a collection of Astruc's works, including his *Genesis*.

Dr. J. D. Rolleston: *Lucian and Medicine*. (Part II.)

Sir Alexander Simpson: Jean Astruc.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. G. Pernet: (1) Extensive Tertiary Syphilis in a Woman; (2) Extensive Tertiary Syphilis in a Male; (3) Dermatitis Fectitia.

Mr. J. E. R. McDonagh: Notes of a Skin Disease of Probable Protozoal Origin, with slides.

Dr. S. E. Dore: Favus of Glabrous Skin, with microscopical specimen and cultures.

Dr. Knowsley Sibley: Scleroderma.

Dr. Graham Little: (1) Multiple Tumours. (?) Fibro-sarcoma (private patient); (2) Angioma Serpiginosum (?); (3) Erythema ab igne (?).

FRIDAY.

SECTION OF OTOTOLOGY (Hon. Secretaries—W. M. Mollison, E. D. D. Davis): at 5 P.M.

Discussion:

On Tuberculosis of the Auditory Apparatus.

The following will take part in the discussion:—Sir William Milligan, Mr. Lake, Mr. J. S. Fraser, Mr. Hugh E. Jones, Mr. C. E. West.

Specimens (at 4.15 P.M.):

Will be shown by Mr. A. H. Cheate, Mr. J. S. Fraser, Mr. G. J. Jenkins, Mr. Wyatt Wingrave, Mr. E. D. D. Davis, and others.

Mr. W. M. Mollison (9, Upper Brook-street, W.) will be glad to hear from members wishing to show specimens or to take part in the discussion.

SECTION OF ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 6.30 P.M.

Discussion:

On the Electrical Treatment of Wounds, Sinuses, Frost-bite, and Sprains, considered more particularly in Relation to the Present War.

Exhibition of Skiagrams.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Cases sent for Consultation. Demonstration of Pathological Specimens. Clinical Cases will be shown by Dr. M. Dockrell, Dr. J. L. Bunch, Dr. W. K. Sibley, Dr. E. G. Reeve, Dr. J. L. Phibbs, and Dr. S. Gooding. 5 P.M., Paper:—Dr. W. K. Sibley: The Treatment of Diseases of the Skin and Mucous Membranes with Carbon Dioxide Snow.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Presidential Address:—Prof. G. Sims Woodhead: Some of the Micro-biological Problems of the Present War.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Paper:—Prof. W. J. Simpson: The War and Cholera.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—4 P.M., Hunterian Oration:—Sir W. Watson Cheyne, Bart. (President).

WEDNESDAY.—5 P.M., Hunterian Lecture:—Prof. H. Blakeway: The Operative Treatment of Cleft Palate.

FRIDAY.—5 P.M., Hunterian Lecture:—Prof. F. C. Pybus: Some Infections of the Tonsil.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Gynaecological (Dr. J. B. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

VOLUMES AND CASES.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 10th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Humidity.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 4	29.76	SSW	...	74	53	45	46	48	Overcast
" 5	29.84	S.W.	0.43	81	53	45	44	46	Fine
" 6	30.47	S.	...	82	50	45	44	45	Raining
" 7	29.78	S.W.	0.22	53	46	43	43	44	Overcast
" 8	29.73	S.	0.45	75	48	39	38	40	Fine
" 9	29.35	S.W.	0.04	74	47	40	40	40	Raining
" 10	29.51	S.W.	...	73	48	39	39	40	Fine

The following magazines, journals, &c., have been received:—

Therapeutic Gazette, American Journal of Orthopedic Surgery, Medical Review, Public Health, Edinburgh Medical Journal, Post-Graduate, Ophthalmology, Archives of Roentgen Ray, Birmingham Medical Review, Canadian Medical Association Journal, Proceedings of the Royal Society of Medicine, School Hygiene, Journal of Tropical Medicine and Hygiene.

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Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

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POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture V.)

THURSDAY.—3 P.M., Dr. P. C. Mitchell: Zoological Studies: War and Evolution—Struggle of Species. (Lecture II.)

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Medical and Surgical Cases.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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An Address

ON

GUNSHOT WOUNDS OF THE HEAD.

*Delivered before the Medical Society of London on
Feb. 8th, 1915.*

By SIR VICTOR HORSLEY, F.R.C.S. ENG.,
F.R.S.,

CAPTAIN, R.A.M.C. (T.F.); CONSULTING SURGEON, UNIVERSITY COLLEGE
HOSPITAL; SURGEON, NATIONAL HOSPITAL FOR PARALYSED
AND EPILEPTIC.

MR. PRESIDENT AND GENTLEMEN,—The subject of gunshot injuries of the head is, of course, an enormously wide one, and it includes not only the important question of how the actual injury to the brain is produced, but the subject can clinically also be profitably discussed from another point of view altogether—namely, causes of death and how to prevent them. I shall speak more in the former direction, and especially because I have not been permitted to see any cases in the present war except a few exceptional instances which happened to be referred to me unofficially.

PHYSICAL EFFECTS PRODUCED BY HIGH-VELOCITY BULLETS.

I made a large number of experiments¹ on this subject over twenty years ago when the 0'303 rifle was introduced into the services, and the results were fully confirmatory of those in part arrived at previously and independently on the Vetterli rifle by Professor Kocher, especially as to the so-called explosive effect of high-velocity projectiles. It occurred to me then that what was required was a registration method. To this end I employed modelling clay, a substance which roughly resembles the tissues in that it contains a considerable percentage of water in its interstices, but differs with advantage in that when disrupted it remains exactly as the explosive force had deformed it, so that all that was necessary was to fill the cavities produced by the bullet with plaster-of-Paris and thereby obtain an absolutely accurate record of the whole effect of the shot.

The method immediately showed several things: first, that the so-called explosive effect was directly proportional (1) to the sectional area of the bullet; (2) to its velocity; (3) to the amount of water present in the substance through which a bullet passes; and (4) that the forces of disruption were at an angle to the axis of the flight of the bullet which I have never been able to determine completely. I have obtained by means of the clay-plaster method further points concerning the ballistics of the projectile which could not be reached in any other way. The most practically important for our present subject are: (1) Where in the course of the bullet most mischief is done, and (2) by what force.

Point of Maximal Disturbance.

The casts show that the maximal disturbance is produced of course as soon as the bullet at its highest velocity is surrounded by the largest mass of wet tissue. In the animal the conditions are governed by other considerations, of which the most important is that the water-holding material is surrounded by an elastic skin, and that the so-called larger aperture of exit necessarily results

from the driving out of the limb or trunk all the fragments of tissue, bone, and particles of fluid to which the velocity of the bullet has been communicated. The larger aperture of exit is a matter therefore of what happens to be struck in the interior of the skin envelope.

Forces Producing the Injury.

These relate to the two movements of a bullet—first, its progression forward, and secondly, its spin around a central axis given to it by the rifling. It is ordinarily assumed that the progression forward movement is the more important, but in my opinion it is not so, although, of course, the amount of injury naturally depends on the length of traverse of the body by the bullet. The most important movement from a pathological point of view, I suggest, is the rotatory spin; and I came to this opinion by observing, to my surprise, that the rotation of the bullet was still visible on the plaster cast even up to the moment when the bullet ceased to penetrate any more.

It is quite clear that under these circumstances the disruption of the tissues must be attributed in the main to the rotating forces of a bullet; and the transverse section of a plaster cast of the cavity made by a bullet fired into wet clay—in which, therefore, there is a maximum disruption due to the water—shows that the particles of fluid are thrown off practically at right angles to the axis of flight. It is interesting to notice also in some of the casts that these disruptive tears have very often a spiral direction antero-posteriorly, the turns of which are of the same length as the spirals of the grooves of the rifle. Sometimes these have also shown an interesting degree of direction backwards, and then the tear is circumferential to the axis of flight, which reminds one very forcibly of the compression waves of air shown in Professor Boys's beautiful photographs of a 0'303 bullet during its flight. It is clear that if the density of the clay varied suddenly, as it does not infrequently, the results would be a fixation in the plaster of the disruption wave quite comparable to that of the more labile fluid air as in Professor Boys's experiment.

Influence of Shape of Bullet.

We must now consider the question how far the shape of a bullet affects the question of degree of destruction. The so-called explosive bullet, or dum-dum, is a soft-nosed lead bullet which deforms very easily, and by its expansion greatly increases the sectional area. Very considerable confusion seems to have arisen recently because the modern jacketed rifle bullet has been made more and more pointed until there is a very great contrast between the long, sharp nose and the flat base. It has actually been supposed that this bullet makes a much worse wound if it advances through the tissues base foremost instead of the apex, whereas, of course, the result being proportional to the sectional area, it makes no difference.

This brings me to the next point, of which a good deal has been made on purely hypothetical grounds—namely, the question of the modern pointed bullet turning over during its passage through the tissues. Undoubtedly turning over of an elongated projectile is a very common event. To find out whether it was more common now with the modern-shaped bullet than with the old conical projectile I asked Mr. Daw, of Messrs. Hollands and Hollands, kindly to make for me some 0'22 calibre cartridges with

¹ Proceedings of the Royal Institution of Great Britain, 1895, vol. xiv., p. 28, No. 4773.

bullets of the same weight as the ordinary conical pattern, but pointed like the modern service projectile, and of course with the same load. This he very kindly did, and I show you the records of experiments made by the clay method under as nearly as possible similar conditions, the first being an imitation service bullet, the second the old conical pattern (both these being 0.22 calibre), and the third the larger 0.310 soft lead bullet to contrast with the service bullet, and to settle again the question of the deformity caused by the various projectiles respectively. This point, I may mention, I had already dealt with in my first experiments 20 years ago, and which, as I have already stated, went to show that the apex of a bullet had no bearing on the immediate question of amount of destruction. I have also dealt with it in a report furnished to Lord Kitchener and published by him.

Turning Over.

Some misconception as regards turning over has arisen, because it seems to be imagined that a very pointed bullet might turn over and over round a transverse axis through the middle of its length, progressing, in fact, like a wheel, but this is not the case, it only turns over once. Turning over is very common, but as is shown when the bullet enters clay or soap it does not happen until nearly half its course has been passed over—i.e., when the progressive velocity is greatly reduced and the advance of the bullet becomes more sensitive to obstructions which will first affect the light tip, the momentum of which is very different to that of the base. Further, in consequence no doubt of the greater obstruction and friction set up when the bullet travels at right angles to its long axis, its traverse of the tissues is much reduced, but the spin due to the rifling continues to the end.

As regards the disturbance of the tissues caused by turning over the net result is conversion of a tubular wound into a cleft which is nearly triangular in cross section, a narrow isosceles triangle, the base of which is caused by the base of the bullet and the apex by the point. When turning over has reached its complete development there is certainly rather more appearance of disruption, but on measuring the circumference of such a cast there is little difference between the "turned over" region with the immediately precursory cylindrical part of the bullet's course. The practical conclusion which follows from these facts is, of course, that turning over is not to be credited, as it has been, with doing much harm, the real cause of great destruction of tissue, &c., being, of course, the high velocity and rapid spin.

Fragments of Bone.

The clay-plaster method showed me another fact that I had not considered fully. It is that the deep penetration of the brain by a fragment of bone is in the first place the simple consequence of the high velocity of the bullet being communicated to such bodies much lighter than itself, and therefore capable of proceeding as far as and even farther than the shot. In view of the fact that any such fragment may be infected, it follows that at the first operation every reasonable search must be made for fragments as they certainly may later cause the death of the patient.

Dr. Bruce's beautiful radiogram is an interesting example because the shrapnel bullet, partly caught

by the edge of the hole, nevertheless has sent on five fragments, one streaked with lead, deeply into the brain. This was the case of an officer who came under my care some ten days after he was wounded at the end of August. There was a foul small round wound above the left frontal eminence which Dr. Spitta found was infected with staphylococcus aureus, and it led into an abscess cavity about 2 inches deep. I removed the purulent debris, fragments, &c., cut away the original wound in skin and bone, and disinfected with sublimate lotion, hydrogen peroxide, and weak carbolic. Vaccination with autogenetic vaccines was carried out by Dr. Spitta for two months. The patient has made an excellent recovery; the cavity has after three months cicatrised, and he has returned fit for light duty. The distance of penetration of the bone fragments in this case is exaggerated, of course, by the retention of the shrapnel bullet on the inner edge of the hole.

CLINICAL FEATURES.

Perhaps the most important subdivision of clinical conditions which are special is that of causes of death.

1. *Concussion.*

Several cases have been reported of fatal concussion without penetration of the skull. These are, of course, perfectly possible because they fall into the same category as the deaths caused by the simple blow of a cricket ball. They are apparently due to direct paralysis of the respiratory and cardiac centres in the bulb. Mr. Walter Spencer and I showed many years ago that mere pressure on the unopen skull, if sufficiently severe on thin parts, could affect the intracranial tension so as to interfere with the functional activities of these centres.

2. *Rise of Intracranial Pressure.*

Duret showed many years ago that the most paralysing effects on the centres of organic life were produced most easily by force applied in what he called the fronto-bulbar axis, and he showed that the effect of shock applied to the frontal region was transmitted largely by the cerebro-spinal fluid to the interior of the ventricles, and even to the fourth ventricle. This is undoubtedly the first effect of a gunshot wound to the head, and evidenced by functional inhibition of the respiratory centre, as Kramer and myself showed first in 1897. Concurrently one has, of course, immediate hæmorrhage and therefore an equal immediate rise of intracranial pressure. If this is not relieved the embarrassed respiratory centre fails. At the same time the vagal centre is at first stimulated and causes very slow beats of heart, and as the pressure rises this gives place to paralysis of the vagal mechanism, and then begins the fatal and final stage. Probably a certain number of deaths in cases of this kind could be saved by immediate operation, and I have under my observation now an officer whose life was so preserved by Major Sherran, R.A.M.C., who, recognising the urgency of this condition just described, operated at the field dressing station within a very few minutes of the infliction of the wound by trephining and washing out the extravasated blood, thus releasing the pressure and saving the patient's life. The patient is now gradually recovering. In many cases if there is a good blood pressure the intracranial tension often prevents a rapid hæmorrhage.

3. Sepsis.

This is, of course, primarily and in the vast majority of cases due to incomplete disinfection of the original wound, but also to the fatal and detestable practice of "leaving head cases alone," which being the outcome of ignorance both of the functions of the brain and of the principles of anti-septic surgery, led many surgeons of the old school (some of whom apparently still survive) to leave a patient steadily to die rather than perform the duty of attempting to save him. I believe this wicked tradition was also in part created by the fact that the leucocytic barrier, whether subdural or intracerebral, was occasionally quite equal to fighting off the infection, and because such a neglected patient got well, the non-comprehending surgeon said, "Let us leave head cases alone as a rule!" It is to the credit of the British Army Medical Service that they showed in their observations and work during the South African War the falsity of this error. We may hope, therefore, that the example of the brilliant surgery of officers like Major Sherran will prevent cases arriving in England under conditions hopeless of restoration both of life and function.

One word in conclusion on general septic infection. Suppose the subdural space is infected and cerebro-spinal meningitis results. Are these cases necessarily fatal? Evidently they are not, as, indeed, Mygind had always contended. What is to be our routine? A case I saw with Dr. Fraser at Southampton, and which I hope he will publish, suggests that the course adopted in that instance might be generally tried—viz., free opening and disinfection by irrigation of the cranial subdural space at the seat of the injury, a liberal lumbar puncture (1½–2 ounces), repeated if improvement arrested, and autogenetic vaccine treatment. I understand that at Cambridge repeated lumbar puncture has been most efficacious in the treatment of the parallel condition of epidemic cerebro-spinal meningitis.

4. Hernia Cerebri.

A great deal of unnecessary importance used to be given to the condition known as hernia cerebri, as its occurrence was proportionate to the septic decomposition which characterised the condition of most of the wounds. In consequence of this latter factor we must divide the subject under the two headings of aseptic and septic hernia.

Aseptic hernia cerebri.—In consequence of the explosive effect of a bullet on the normal brain, if portions of the bones of a skull are carried away, as, for instance, in the formation of a gutter, then the rise of intracranial tension will cause a certain amount of extrusion of the brain substance. This is accompanied by extrusion of the lacerated brain against the edges² of the opening in the skull. Owing to hæmorrhage in the brain substance produced by the explosive effect such a hernia tends to remain only just so long as there is increased intracranial tension, as, for example, in the cases of removal of cerebral tumour, where aseptic herniæ can be studied not infrequently.

Septic hernia cerebri.—I come now to the more difficult question of septic herniæ and their significance. An infection of the bruised brain may

present simply a localised suppurating cavity, in which case there is no hernia. If, however, the leucocytic barrier of the cavity is imperfect and the hemisphere in consequence happens to become the seat of general cerebritis then hernia of necessity follows, and if the mischief spreads the hernia increases because of the spreading infective œdema of the brain. The subdural leucocytic barrier may be quite effective in some cases and yet the hernia increases. This was what one finds referred to very largely in the writings of the old surgeons, and in this case undoubtedly after some time some of the increase is due to the development of granulation tissue in the brain that projects. Such herniæ, if the subdural barrier is good, yields completely to treatment with absolute alcohol and cutting away as the surface rapidly necroses. Various substances have been used for this purpose—e.g., formalin, but for many years I have never found anything better than absolute alcohol.

FUNCTIONAL DISTURBANCE OF THE BRAIN.

The first and most important practical question is how far compensation for loss of functions due to loss of cerebral substance occurs; possibly this is a question which, though attacked by neurologists for 50 years, must remain essentially indeterminate until the function of every part of the brain is accurately ascertained. It will be simplest, perhaps, to consider the matter by two examples—first, a sensory region of the cortex, and secondly, the kinæsthetic. I desire to premise my examples by suggesting that in the human adult there is no evidence of compensation by education or substitution of function in other parts of the brain for function lost by reason of permanent destruction of given areas. Recovery due to absorption of hæmorrhage and re-establishment of partly blocked circulation, however, may be expected to go on for several years if not interrupted by epilepsy and secondary mental change.

(a) Sensory Cortex.

The most specialised centre and most clearly arranged topographically is the visual area. I will, therefore, confine my remarks to that sensory function, and a case that I saw in October last with Dr. Simpson illustrates very well the problem.

The patient, an officer in an infantry regiment, was hit by what was apparently a Mauser bullet on the right side of the head just below the parietal eminence. The bullet passed through the occipito-temporal region, making a deep gutter through the brain and under the skull, emerged through the middle of the right half of the occipital bone, and buried itself in the muscles at the back, where it was extracted by an incision on the field. The patient, who was totally blind, reached London—namely, the 3rd London Base Hospital—on about the fourth day after receiving the wound. Nothing was done to the wound on the head so far as can be ascertained. When I saw him in a nursing home on the seventh day both wounds were inexpressibly foul; the posterior two-thirds of the head was œdematous, the patient who, as before stated, was completely blind, could with difficulty be roused to an order, and his temperature was 101° F.

Under an anæsthetic the apertures in the scalp were explored by a large flap incision, and it was then found that, in addition to the comminution of the skull at the apertures of entry and exit, there was also a line of fracture and comminution about 4½ inches long connecting the holes. Further, the whole lambdoid suture was started so that the occipital bone was loose—i.e., both halves. On clearing away the fracture blood and pus came from underneath the bone, but I considered that the subdural leucocytic barrier had already sealed off much of

² Thus aiding in the formation of the subdural leucocytic barrier, as was first made clear by Schäfer.

the subdural space. The wound was very thoroughly disinfected, irrigated with peroxide of hydrogen and sublimate lotion. As the flap incision was a very free one no further incisions were made in the oedematous skin on the left side of the head. All lacerated portions of brain tissue were removed. Besides pus there were several sloughy and dark pieces of tissue obviously necrosed. The bacteriological inspection of the head wound gave (by Major Embleton) an almost perfectly pure culture of the bacilli of malignant oedema. The patient has made a good recovery so far after frequent dressings with peroxide of hydrogen and weak carbolic lotion.

The immediate question in this case, however, is the recovery of sight. This began to return in the top right-hand corner of both fields, and has now spread until the patient can see probably over most of the upper right quadrant, but he is a good witness. The first recovery of the upper part of the field in this central case interests me because I have shown that in peripheral lesions—i.e., optic neuritis—the pressure is most severe on the upper half of the nerve and disc, and therefore preservation of sight is chiefly in the upper quadrants. (This patient had a remarkable congestion of his discs, but no true swelling.)

My immediate point is that no recovery has taken place in the gravely injured lobe; neither, I fear, can any be expected. As regards the representation of the upper and lower halves of the visual field in the lower and upper parts of the calcarine cortex and the bearing of this further consideration on the present case nothing can justly be said, seeing that the whole occipital suture being started there must have been bruising of some degree, even if slight, affecting the left calcarine region. Mr. Cruise, who has had charge of the case ophthalmologically throughout, will very kindly report on the case.

(b) *Kinæsthetic Cortex.*

The consideration of the loss of function of the Rolandic region is much more difficult, since paralysis of movement is no simple question of the destruction of a so-called motor centre, but also that of a number of sensation conditions and memories.

1. *Loss of movement.*—So far as the loss of motor function alone may be discussed I desire to suggest, from the experience of cases who were wounded in the South African War, that the chief movements of the hand are not restored if the whole arm area of the anterior gyrus has been destroyed.

2. *Loss of kinæsthetic memories.*—The retention of power to move a segment of a limb at all is one thing, but the ability to effect that movement without clumsiness is quite another. This depends on the conservation of what I term the topognostic sense—viz., the relation of a spot touched on the body, to our knowledge and conception of our position in space; and that chiefly in the relation of the spot touched to (a) the distance from the body—i.e., "proximity"; and (b) the distance to the mid-line of the body or "axiality." The loss of the sense of appreciation of these relations and distances is what we call, in popular language, clumsiness, and I have shown that this topognostic sense is represented in both central Rolandic gyri. Further, I believe it is permanently lost if the arm area of both gyri is permanently destroyed. Thus far, therefore, there is no compensation possible by substitution activity of the lower centres. Coarser coördinated movements of shoulder, elbow, wrist, and even of the hand, however, can be furnished by such lower activities.

THE PERNASAL OPERATION FOR FRONTAL SINUS SUPPURATION BY THE ANTERIOR ROUTE.¹

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A FEW years ago the improved technique of operating on the frontal sinuses by the external radical method, and more particularly by the Killian operation, seemed to have solved the question as far as cases of frontal sinus suppuration attended with severe symptoms were concerned. The reported successes left the impression that skill and experience were the only essentials for a good result—that is to say, good in the sense of obtaining a cessation of discharge, headache, &c., though not seldom far from good in the cosmetic result. But these earlier successes have been discounted by several instances of septic osteomyelitis occurring in the practice of those who may justly be regarded as very highly skilful, a complication almost invariably fatal; while numerous instances of very grave deformity from absorption of the "bridge" in the Killian operation, failure to obtain cessation of suppurative discharge and headache, have made every rhinologist pause before advising a radical operation unless the symptoms are so urgent that, notwithstanding these undoubted risks, obliteration of the sinus involved must be advised. And though so far I have escaped the worst of these complications, it is, I fear, more by good fortune than the result of special skill.

Intranasal methods of securing effective drainage by the removal of the anterior end of the middle turbinate body and of the anterior ethmoidal cells around the lower end of the fronto-nasal passage, so as to render lavage of the frontal sinus, by means of a fine 2 mm. cannula, have been practised for many years, and in a large percentage of cases such lavage has proved of undoubted value. But there are many cases where either the sinus cannot be entered and lavaged at all by these methods, or where, if lavage is possible, the passage for the escape of secretions is still so narrow that the drainage is most inefficient and the symptoms unrelieved, so that some improved intranasal operation has long been a desideratum. Schäffer, Spiess, and others managed to open into the frontal sinus floor through the roof of the olfactory fissure, but the results were disappointing, and in the hands of one follower fatal, hence the method was abandoned. To Fletcher Ingals is due the credit of introducing the method of following up the tract of the fronto-nasal duct—that is, entering the frontal sinus outside the middle turbinal and through the natural frontal sinus ostium. All modern methods are developments of Fletcher Ingals's operation—e.g., the operations of Halle, Segura, &c. Unfortunately the operative methods of all these pioneers are open to grave objection on account of their inherent danger, and hence I have endeavoured to devise an intranasal operation which is comparatively safe and certainly in most cases highly efficient.

The fronto-nasal passage, in its downward course from the bony ring of the upper ostium to its lower

¹ Abstract of a demonstration in the Laryngological Section at the annual meeting of the British Medical Association.

FIG. 1.



Bone specimen showing the fronto-nasal passage with probe passing through; the dotted line shows the route of anterior entry through agger and other anteconchal cells. Note the "anterior entry" is well in front of the cribriform plate.

opening in the uncinate groove and infundibulum, is more or less surrounded by anterior ethmoidal cells, and of those that lie in front of this passage we recognise as fairly constant the one or two agger cells below and the usually smaller ethmoidal cells above. All these lie in front of the free margin of the anterior end of the middle turbinal, and for this group I therefore suggest the term "anteconchal cells." By opening up and removing the anteconchal cells we obtain a much more anterior or direct route to the frontal sinus than by endeavouring to locate the more posterior frontal sinus passage at its lower end and following it in its upward and forward direction, the difference between the old posterior and what I call the anterior route being obvious in the specimen. (Fig. 1.) By entering the sinus through the anterior route we keep in front of the cribriform plate, while by retaining the anterior end of the vertical plate of the middle turbinated bone, and restricting the operation to the outer side of this vertical plate, we ensure our being also to the outer side of the cribriform plate, which is the only serious danger zone if we avoid all force in introducing instruments. The operation appears a dangerous procedure unless we bear in mind that the operative field is not only outside, but also in front of the anterior extremity of the cribriform, which was not the case when operating by the old route.

The clinical and also the anatomical conditions to be dealt with largely determine the extent of the operation required. In a large proportion of patients the simple removal of the anterior ethmoidal cells by the anterior route forms a new fronto-nasal passage large enough to admit a No. 17 or No. 19 sound—i.e., the passage is about 6 mm. in diameter, and has therefore about nine times the sectional area of the normal 2 mm. wide passage. This suffices for very free drainage and the patient can usually very soon learn to wash out the sinuses daily.

Such operative measures are restricted to anterior ethmoidal cells, and though undertaken for frontal sinus suppuration they are not extended to the frontal sinus itself in any part. This removal of the anterior ethmoidal cells which obstruct the exit of discharge below the frontal sinus ostium has been the object of the intranasal operations for frontal sinus suppuration for many years, but when attempted in the more or less haphazard way of working from the lower end of the fronto-nasal passage it is a difficult matter to follow up the course of the passage, as one is working from below upwards and forwards in a dangerous area. In 1911 at the annual meeting of the British Medical Association, Mosher, of Boston, demonstrated his method of opening the agger cells from above and so clearing away these anterior ethmoidal cells in a systematic manner. At the same time I demonstrated the method I adopt, which effects the same result from below and without destroying any part of the vertical plate of the ethmoid, a point I think of import inasmuch as it does not involve fracturing through this vertical plate in close proximity to the cribriform plate and laying open venules and lymphatics in this dangerous area to the risk of infection by the purulent discharges from the frontal sinus.

Tilley has adopted Mosher's operation with this difference, that he removes the anterior end of the middle turbinal at the beginning instead of as a final step, and since February, 1914, has used a rasp for assisting in the more complete removal of the agger cells. In the more favourable cases, those in which the frontal sinus ostium is naturally large, being merely obstructed by the diseased ethmoidal cells of the fronto-nasal passage below the sinus ostium, this relatively simple operative measure is very often attended with good result.

FIG. 2.



To show the initial point of entry in the intranasal frontal sinus operation. The small sphenoid-ethmoidal forceps are seen cutting the point of attachment of the middle turbinal to the outer nasal wall, thus entering the fronto-ethmoidal cells

This we may term the incomplete operation. But a "complete" pernasal operation—i.e., an operation not only on the ethmoidal cells but also on the frontal sinus ostium—is called for when, in association with frontal sinusitis, the agger cells and the other anteconchal cells are poorly developed, or the nasal crest projects backward in marked degree. It then becomes necessary to remove the nasal crest by a rasp or burr, sometimes very freely, so as to afford a large entry, measuring 7 or 9 mm. antero-posteriorly by 6 mm. wide, because, after stripping the mucous membrane towards the front and removing the bone, granulations tend to close the passage in the process of healing. Thus, unless the passage is a good deal larger than seems necessary it may contract so much that the operation is ineffectual as a means of obtaining the all-essential permanent free drainage.

Operative Technique.

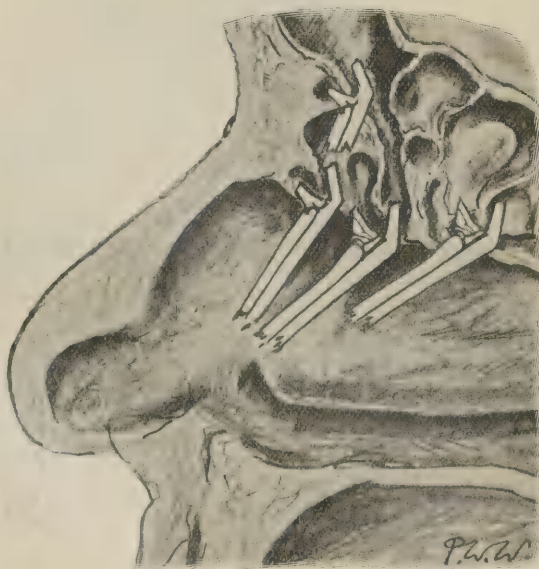
It is assumed that the extent and depth of the frontal sinuses have been determined by skiagrams prior to operation.

Anæsthesia.—Even the "complete" pernasal operation on the frontal sinus may be done under local anæsthesia, but in the majority of patients a general anæsthetic is desirable, and more especially if operation on the maxillary antrum or sphenoidal sinus is to be done at the same time. Yet, as far as pain is concerned, one may do any of the procedures described for frontal sinus disease under cocaine anæsthesia, using a 20 per cent. solution of cocaine hydrochloride with a little adrenal extract. The patient may be sitting up or lying flat on the back, or slightly inclined; it makes no difference to the ease of operation.

A. Removal of Anteconchal Cells, the "Intranasal" or Incomplete Operation.

1. With the small angular ethmoidal forceps engage the anterior margin of the middle turbinate at its point of attachment to the outer nasal wall.

FIG. 3.



To show the author's small sphenoidal forceps clipping down walls of the ethmoidal cells external to the vertical plate of the middle turbinal.

Cutting through this the forceps enter the anterior ethmoidal cells in front of the fronto-nasal passage (see Fig. 2).

2. Keeping to the outer side of the vertical plate of the ethmoid, clip away all the agger cells and the other anteconchal cells right up to the crista nasalis (Fig. 3).

3. The anterior ethmoidal cells lying behind or above the fronto-nasal duct, including the bulla ethmoidalis, are now removed by the forceps as far back as may be necessary.

FIG. 4.



Skiagram showing the 4 mm. wide guarded electric burr reducing the crista nasalis in a patient.

4. Using the larger forceps, the thicker projecting partitions of the cells are laid open and punched away. Only the blunt tip of the female blade can come in contact with the roof, hence with any reasonable care there is no risk of the roof being perforated.

5. The author's sounds are then passed into the sinus, so as to gauge the size of the fronto-nasal channel thus formed. Often No. 18 or 19 will enter, sometimes 19-23 or 19-25. (The figures give the circumference in millimetres; hence 19 has a diameter of 6.05 mm., or $\frac{1}{4}$ in. A 19-25 sound measures 6 mm. in width and 8 mm. in antero-posterior diameter.)

6. With the small forceps, which now enter freely, the projecting walls of any remaining ethmoidal cells may be clipped away to render the passage more free.

B. The "Pernasal" Frontal Sinus or "Complete" Operation.

7. If a large enough sound will not enter it may be necessary to enlarge the frontal sinus ostium, and to this end the bone corresponding to the nasal crest may be shaved away by the sharp rasp till these large sizes can be introduced or the crest reduced first by the smaller guarded burr. When a No. 10 sound enters the sinus the bony boss can be further burred away with the 4 mm. wide burr until the burr enters the sinus. (Fig. 4.) When the frontal sinus opening lies well to the outer side and tends to guide entering sounds towards the orbital roof, it is well to, unless contraindicated by skiagram, draw the rasp or burr towards the front so as to enlarge the frontal ostium to the front and inwards rather than towards the orbital roof outwards. One is in front of the cribriform

plate here, and there is no danger provided the instrument is really in the sinus.

One advantage that may be claimed for this method of entry as compared with methods with unguarded burrs is that the mucous membrane is not stripped from the posterior and lateral walls of the new passage, for although the cell partitions are clipped away the mucous membrane of the cell bottom is mostly retained. Only anteriorly is the bone laid bare, and that for a strip about 6.5 mm. wide, and this can apparently recover itself by extension from the muco-periosteum on either side. Is it not better to have a 6 or 7 mm. wide passage which is lined with mucous membrane than a wider

discharges disappear. 3. The use of vaccines, &c., has to be considered. But in cases of streptococcal infection it is always safer to give 30 to 50 c.c. of polyvalent antistreptococcic serum immediately before operating, and follow with sensitised vaccines.

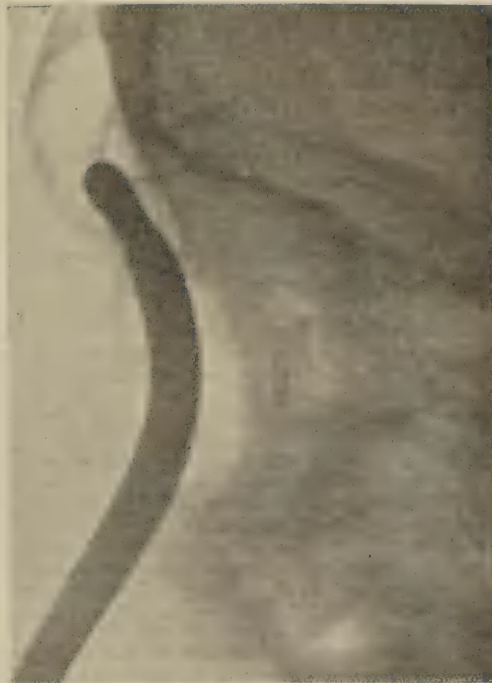
If a sufficiently wide fronto-nasal passage to admit a bougie 15 mm. in circumference is obtained without cutting away the thick part of the nasal crest, and the sinus infection is recent, or there is no reason to believe that polypoid degeneration of the mucosal lining has occurred, I do not use a burr or other means for cutting away any part of the floor of the sinus unless subsequent observation seems to render this desirable. (Provided efficient

FIG. 5.



Skiagram showing 6 mm. thick round bougie entering frontal sinus, but carried back so as to impinge against tabula interna because the nasal crest is thick.

FIG. 6.



The same case, but showing the 6 mm. (No. 19, French scale) bougie entering well into the sinus after reduction of the nasal crest by burring.

These two Figures are from the same patient, reproduced actual size direct from the skiagram.

one stripped of mucosa which can only granulate over and which is much more liable to subsequent contraction.

At the conclusion of these procedures the sinus is well lavaged, and finally the anterior end of the middle turbinal may be removed or left for some days, as when it is left intact the channel may become narrowed by subsequent granulations. In many patients I find it unnecessary to remove any portion of the middle turbinal either at the time of operation or subsequently, and in such cases the nasal passage appears to be intact and normal except that a large fronto-nasal passage is found running up to the sinus.

After treatment.—This consists: 1. In lavage of the sinus, first with saline solutions and weak peroxide of hydrogen, and some mild antiseptic, such as colloidal or other silver preparations, iodine solutions, &c., and later with stronger solutions if necessary. 2. In the passage of the largest sound the canal will take comfortably, repeated at short intervals to prevent adhesions, and to ensure the passage remaining widely open until the sinus has become healthier, or the

(drainage is maintained, and the patient has been relieved of pain, headache, and inconvenient discharge, only the lesser operative measures are performed.)

I have entered more than 100 frontal sinuses by this anterior route, doing either the intranasal or the pernasal "complete" operation.

Many have been cured, nearly all have been relieved. But in some few cases it has been necessary to do an external operation subsequently, while in another small percentage it has been impossible for me to reach the sinus pernasally. These exceptional and difficult conditions I propose to discuss in another communication.

Clifton, Bristol.

INFECTIOUS DISEASES IN DUNDEE.—The monthly report of the Dundee Public Health Department shows a marked increase in the number of cases of measles and whooping-cough. Altogether 803 cases were notified during the month of January, and of these 320 were of measles, as against 175 cases the preceding month, and 384 were of whooping-cough, as compared with 132 during December. In January of last year only 324 infectious diseases notifications were made.

LIPÆMIA RETINALIS.

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THE earliest accounts of the condition of the blood to which the term lipæmia is applied are by Rollo, of London, in 1798, and Mariet, of Edinburgh, in 1799. The ophthalmoscopic picture which is associated with this condition was first seen and described by Heyl in 1880, since when very few additional cases have been reported. The appearances of the eye fundus are so striking that they cannot be overlooked, and are so characteristic that having once been seen they cannot fail to be recognised, and in addition, so far as I can discover, they form the only means, apart from a blood examination, of diagnosing the condition of lipæmia.

The two cases which form the basis of the present remarks were under the care of Dr. A. E. Garrod, Dr. J. Calvert, and Dr. Morley Fletcher at St. Bartholomew's Hospital, to whom I am indebted for permission to publish them.

CASE 1.—The patient, a man aged 23 years, was admitted under the care of Dr. Calvert on Oct. 2nd, 1914, suffering from diabetes mellitus. He had all the essential symptoms of the disease. His knee-jerks and plantar reflexes were absent, he had lost much flesh, and was a little drowsy on admission. He was of a fresh colour; his fundi were normal. The examination of the urine resulted as follows: Specific gravity 1031; reaction alkaline, phosphates were present. Albumin was present in small amount on one occasion only. Acetone and aceto-acetic acid were present throughout. The quantity passed varied from 7 to 13 pints. The maximum quantity of sugar passed was 266 grammes and the minimum 139 grammes in 24 hours. On Nov. 9th examination with the ophthalmoscope at 11 A.M. revealed the condition of lipæmia retinalis, and the appearances had not changed at 6 P.M. The patient said he was feeling very well, but on inquiry the Sister informed me that he had been drowsy. His colour was fresh and good; it did not strike me as being abnormal. His capillary circulation as tested by pressure on the finger nail was as free as my own. The composition of his alveolar air was examined on three occasions by Dr. George Graham with the following results: Nov. 9th, 7 P.M., 2.56 per cent. CO₂; 10 P.M., 2.2 per cent. Nov. 10th, 9 A.M., 1.0 per cent. On the morning of Nov. 10th air-hunger was very apparent. Ten ounces of blood were withdrawn from the arm by Mr. H. J. Bower and examined by Dr. T. H. G. Shore and Mr. W. H. Hurtley. The patient died in coma at 2.15 P.M. A post-mortem examination was not permitted.

CASE 2.—The patient, a woman aged 25 years, was admitted to John Ward on April 19th, 1905, under the care of Dr. Garrod suffering from diabetes mellitus; she had previously been admitted under Dr. Garrod and also under Dr. Morley Fletcher. Her symptoms were of 15 months' duration. From March to June, 1904, she was under Dr. Garrod's care. At this time she was passing 5 pints of urine, with a specific gravity of 1045, in 24 hours; the amount of sugar was 4.2 per cent., and a strong ferric chloride reaction was present. The eye fundi were normal. On her discharge the amount of urine was reduced to about 50 ounces, sugar was absent, and thirst had disappeared. From Nov. 4th, 1904, to Feb. 8th, 1905, she was under Dr. Morley Fletcher's care. She was now passing from 5 to 8 pints of urine, which contained 5.2 per cent. of sugar, and a strong ferric chloride reaction was again present. She was sent to a convalescent home on Feb. 8th, having gained 9 lb. in weight; her urine still gave a marked iron reaction and contained 4.6 per cent. of sugar. The eye fundi were normal. On April 19th she was readmitted under Dr. Garrod. She was suffering from marked dyspnoea and had vomited. Her breath smelt strongly of acetone. Her knee-jerks and plantar reflexes were absent. The urine had a specific

gravity of 1020, contained much sugar, and showed a well-marked iron reaction. She died in coma 44 hours after admission. Twenty hours before death venesection was performed by Dr. F. A. Hepworth, and a high degree of lipæmia was so discovered. The fundus oculi was now examined, and the striking appearances of lipæmia retinalis were seen. A post-mortem examination was not obtained.

Ophthalmoscopic appearances.—Case 1.—The fundi were examined 27 hours and again 20 hours before death, and the condition of the blood was recognised by this means. The abnormal features were almost entirely limited to the appearance of the retinal vessels. These were of a salmon colour on the disc and for a short distance beyond, but when traced towards the periphery the colour became much less saturated, and gradually merged into a cream colour with almost no pink tinge. The colour of arteries and veins did not differ at all. In the centre of the disc a faint central light streak was seen on the arteries, and by this means, but by no other, could the arteries be distinguished from the veins; towards the periphery both sets of vessels were identical in appearance. Both arteries and veins were well filled, perhaps a little abnormally so, but there was no turgidity or obvious distension. The general tint of the fundus was rather pale. The optic disc was normal in appearance, its edges were perfectly sharp and clear-cut, and there were neither hæmorrhages nor exudates anywhere to be seen.

Case 2.—The foregoing description would apply in every essential particular to this case, but there were two differences of degree. The colour of the vessels was of a more saturated salmon pink and extended further outwards into the peripheral vessels, and all the vessels, whether arteries or veins, were markedly distended and therefore tortuous; they were about twice their normal diameter.

Lipæmia is described as occurring in a number of widely differing diseases—e.g., chronic alcoholism, phthisis, asphyxia, nephritis, phosphorus poisoning, pneumonia, peritonitis, gout, starvation, and diabetes. I have, however, been unable to discover any reported case in which lipæmia retinalis was observed, except where diabetes was the cause.

A description of the appearances seen with the ophthalmoscope is given by the following observers: Heyl,¹ Hale White,² Fraser,³ Futchner,⁴ Heine,⁵ Reiss,⁶ and Turney and Dudgeon.⁷ All were cases of diabetes in young subjects; the oldest was 35, the youngest 17, and the average age was 24. In several of these cases a general pallor of the fundus is described, and in two cases some visual defect, but otherwise in no case is any abnormality described except as regards the appearance of the retinal vessels. The colour of the vessels is the most striking feature, arteries and veins being quite indistinguishable from each other by this means. There is general agreement in describing the largest vessels as being salmon-coloured and the peripheral vessels as being cream-coloured; differences exist only as to the distance towards the periphery to which the salmon-colour extends.

So far as can be judged from the descriptions of reported cases, the intensity and extent of this salmon tint were greatest in the present Case 2; whilst at the other extreme, in Heine's⁵ case the vessels looked as if they contained milk and not blood; in Fraser's³ case the vessels are described as being white; and in Turney and Dudgeon's⁷ report it is stated "the only place where anything approaching a red tint is seen is in the vessels as they come up into the centre of the disc. Before they have crossed the disc this has completely gone, to be replaced by a pale cream colour."

The change of colour of the retinal vessels is so striking that one is tempted to conclude that this implies a chemico-physical change in the hæmoglobin. In no case that I have found has a spectroscopic investigation of the blood been carried out,

and in the absence of any such evidence of change in the blood pigment there are grounds for attributing the altered appearances solely to the opacity of the plasma. Thus the only situation where this change of colour is seen is in the retinal vessels; the general tint of the fundus, which is dependent upon the light reflected from the choroidal vessels, may be a little pale but is not otherwise altered, nor is that of the cheeks. It must be borne in mind that the retinal vessels are peculiar in this, that resting as they do upon the surface of the retina light is reflected direct from their central axial stream without having to traverse any but transparent media. In the case, however, of the normal choroidal vessels the light reflected from them has to traverse a light diffusing medium in the form of the retina with its pigment epithelial layer, and consequently the normal choroidal vessels, as seen with the ophthalmoscope, differ markedly in appearance from normal retinal vessels. When now the central axial stream of the retinal vessels is surrounded by a plasma, which on separating has the appearance of cream, the effect of a ground-glass instead of a transparent envelope is produced.

Much diffusion of the light reflected from the axial stream results from this, and in this particular the condition of normal choroidal vessels is approximated, and consequently the appearance of the two sets of vessels as seen with the ophthalmoscope is very similar. This is seen in three particulars—viz.: 1. The "ground-glass" effect of the opaque plasma does away with the central light streak seen in normal retinal vessels, as a consequence of which the cylindrical contour is lost, and the vessels have the appearance of flat bands or ribbons as is seen in normal choroidal vessels. 2. The colour of the retinal vessels in lipæmia, where the salmon tint is moderately saturated, is almost exactly that of normal choroidal vessels. 3. In both instances there is the difficulty of distinguishing arteries from veins. It is probable, therefore, that the marked change in colour of the retinal vessels is due entirely to the condition of the plasma, and does not imply a change in the blood pigment.

Distension of vessels.—In none of the reported cases are the vessels described as being less well filled than normally, but in several there has been a well-marked degree of distension of them. In Case 2 both arteries and veins were very full and turgid; they were not less than twice their normal diameter, and this was also the case in Heyl's patient; in the remaining cases, however, distension was not conspicuous, the vessels are described as being well filled (Turney and Dudgeon), a little larger than normal (Hale White), rather dilated (Heine), and this last description would apply to Case 1.

Vision.—There may be very marked lipæmia of the retina without any serious interference with vision. In Case 1, 27 hours before death, in reply to an inquiry, the patient said he did not notice any alteration in his sight, he could see about the ward quite well, and could read a newspaper rapidly and without trouble. Turney and Dudgeon say of their patient that "so far as rough tests go her vision may be described as normal," and in Heine's case, though the vessels looked as if they contained milk and not blood, there was "no difficulty with vision." In the cases of Reis and Heyl there was loss of vision; it would seem possible, however, that the defect in these cases was due to

an accompanying retrobulbar neuritis and not necessarily due to the presence of lipæmia. The optic disc is always quite clear, and there is no obvious œdema of the retina, nor are there areas of exudate, and it is a striking fact that retinal hæmorrhages which so readily occur in altered conditions of the blood have never been recorded in lipæmia.

Prognosis.—There is no doubt that lipæmia of such degree as to give rise to the appearances of lipæmia retinalis implies a grave condition, for I have been able to find one case only in which the patient survived after its discovery. It is, however, clear that recovery is possible and that the normal appearance of the fundus may be restored, for Hale White says of his case that "the colour of both sets of vessels became more healthy, and was quite natural after he had been in two months."

Whilst, then, with a general improvement in the patient's condition lipæmia may disappear, there are grounds for surmising that towards the end of the patient's life it may also disappear and constitute an omen of grave import. It has been shown that a large ingestion of fat increases the amount of neutral fats in the blood, and the plasma may be milky from this cause (Schäfer⁸). The fat in the blood in lipæmia, however, is independent of food taken (Naunyn,⁹ Gerhardt¹⁰), and its source would seem to be the reserve stores of body fats, as is the case in the lipæmia of starvation (Hunter²²). If, then, in a case of diabetes the patient should escape coma sufficiently long for his store of body fat to become exhausted, it might well be expected that lipæmia, if previously present, would disappear. Whether in fact this does occur one cannot state; it did not happen in either of the present cases, but in neither was there marked emaciation. It was, however, demonstrated by Boggs and Morris in their experimental lipæmia (*vide infra*), and the cases of Turney and Dudgeon and of Zandy¹⁰ lend some colour to the possibility of its occurrence in man.

Turney and Dudgeon found at the post-mortem examination of their case that "the great omentum had a very remarkable appearance, in that all the fat was gone from it and the tissues had a gelatinous appearance; all the fat round the viscera was similar, and this was well seen in the heart." The subcutaneous fat, although diminished, had not disappeared. Corresponding with this disappearance of the body fat they find that, whereas film preparations of the blood obtained during life showed a very large number of fat droplets of all sizes, similar films of the blood obtained post mortem, prepared by the same method, failed to show the slightest evidence of fat. They were, however, able to show abundance of fine fat granules in the tissue cells. Similar observations were made in Zandy's case.

Turney and Dudgeon suggest that this "disappearance of the fat from the blood in the large vessels is a vital phenomenon conditioned possibly by the febrile state of the last few days of the patient's life"; it would seem, however, that the remarkable manner in which the stores of body fat had become exhausted might supply an explanation of this.

Differential diagnosis.—Heyl in his original paper suggests a certain similarity to leukæmic retinitis. The very characteristic colour of the retinal vessels in lipæmia is entirely absent in leukæmia; this alone would differentiate the two conditions. In addition, however, in leukæmic retinitis the veins are usually greatly more distended than the arteries, especially in the myelogenic variety, and hæmorrhages are always present; these features are

⁸ Gerhardt reports the case of a dog which had spontaneous diabetes; the blood contained 12.3 per cent. of fat, though the animal had had no food for nearly 24 hours.

absent in lipæmia. I do not think that lipæmia retinalis having once been recognised would ever be confused with any other condition.

Experimental lipæmia.—Czerny¹¹ made the following experiment:—

Fat was injected into the jugular vein of a dog, it having been first ascertained that the eye fundi were normal. Forty-eight hours after the injection numerous hæmorrhages were present in the retina, but there is no mention of appearances at all like those of lipæmia. The retinal hæmorrhages in this case were no doubt due to the presence of minute fat emboli, and their method of production was almost certainly precisely similar to that of the retinal hæmorrhages so usually seen in cases of infective endocarditis.

Boggs and Morris¹² produced lipæmia by bleeding rabbits to the extent of 25 c.c. on six days out of seven for a period of some weeks. In from 8 to 16 days, when the red cells had been reduced to about 2,000,000 per c.mm., the serum became milky; when, however, the bleeding was continued over long periods the animal became intensely emaciated, all the coarse body fat disappeared, and the serum lost its milky character. There is no mention of the appearance of the eye fundus in these experiments.

These experiments would seem to lend support to the surmise that should a lipæmic patient survive sufficiently long to become greatly emaciated the lipæmic condition of the blood might disappear.

Boggs and Morris, as a result of their observations, suggest that lipæmia may occur clinically in cases of anæmia, and state that they have seen a moderate degree of it in a case of anæmia secondary to hæmorrhoids. In any case of severe anæmia, pallor of the fundus as of the skin is present, and the retinal vessels, both arteries and veins, have a paler tint than is normal, and show less difference than is usual between the colour of the two sets of vessels. These appearances are, I believe, entirely due to the dilute condition of the blood in such patients. I have examined the fundi of 36 patients admitted to the wards of St. Bartholomew's Hospital suffering from severe secondary anæmia, which was due in most cases to bleeding from gastric or duodenal ulcers.

The average blood count of these 36 patients was 2,506,000 red cells, and the average hæmoglobin percentage was 40; in one case the red cells were so few as 580,000. In most of these the pale colour of the vessels is noted, and in two cases the approximation in colour between arteries and veins is specifically remarked. Retinal hæmorrhages in the vicinity of the disc are so common as to be the rule.

It is worthy of note that in two of these cases Boggs and Morris's experimental conditions were in large measure fulfilled. Both had had bleeding piles for many years, one of them for ten years, and in both severe anæmia had resulted. The blood examinations were as follows:—

Case 1	...	Red blood cells, 2,730,000		Hæmoglobin, 34 per cent.
" 213	...	" " 3,900,000		" 40 "

In the latter of these two cases severe impairment of sight had resulted from the continual loss of blood, and further testimony of the extent to which this slow blood-letting had progressed was evidenced by the degree to which his blood-forming tissues had undergone compensatory hyperplasia; seven weeks after his piles had been ligatured by Mr. R. C. Bailey his red cells had increased to 6,200,000, his hæmoglobin percentage to 105, and his now extraordinarily florid appearance contrasted markedly with his previous bloodless condition.

In neither of these two cases nor in any of the 36 cases mentioned, however, were the appearances of the fundus at all like those seen in lipæmia, nor have I seen anything similar in chlorosis or pernicious anæmia.

No doubt low or moderate degrees of lipæmia may exist without causing visible retinal changes. Normal plasma contains from 0.2 to 0.5 per cent. of fats, either as glycerides or cholesterin esters of the fatty acids, and under certain physiological conditions these amounts may be exceeded without producing retinal changes. Heine believes that the appearances of lipæmia retinalis are only produced when the amount of fat in the blood reaches 4 or 5 per cent.; it may occasionally rise so high as 15–18 per cent. (Umber, F.²⁶)

Conclusions.

Lipæmia retinalis occurs in young diabetics who are usually bordering on coma, and it consequently implies an immediately grave prognosis, but recovery from the condition may occur.

It implies a high degree of lipæmia, and it is probable that in no condition other than diabetes does lipæmia attain a sufficiently high degree to give rise to the appearances of lipæmia retinalis.

Vision may remain unaffected in spite of a very high degree of lipæmia retinalis.

The conspicuous changes in colour and appearance of the retinal vessels are probably entirely dependent upon the opacity of the plasma, and do not indicate a change in the hæmoglobin.

Lipæmia retinalis supplies so striking and characteristic an ophthalmoscopic picture that it cannot be overlooked nor mistaken for any other condition.

Examination of the Blood by Dr. T. H. G. SHORE.

The blood was taken from the median basilic vein, and as it flowed had a noticeably milky or chalky tinge. After a very few minutes the quantity collected in the bleeding bowl showed a whitish layer collecting on the surface. The blood clotted rapidly, and as the serum separated the whitish material separated with it, giving the appearance of blood mixed with milk or cream. Some of the blood was taken straight into a centrifuge tube, and after coagulation had taken place was separated into two layers; the lower, about half the volume of the blood, looked quite normal, but the upper consisted of the milky serum looking after this treatment more than ever like milk. No separation of the constituents of the upper layer could be effected by the centrifuge. The opacity could not be removed by treatment with ordinary quantities of ether, but a slight greasy mark remained on blotting-paper after the evaporation of the ether, showing that some small amount at any rate appeared to be due to an ether-soluble fat. Under the microscope red and white corpuscles were quite normal in appearance. An actual count was not done. Lying free in the serum, both in the fresh blood and in the centrifuge-separated serum, a very large number of minute feebly refractile spots were to be seen, not at all like globules of fat, and no such globules could be seen. These small bodies did not appear to be crystalline, and could not be made to stain with Soudan III. They were not visible in a film stained by Leishman's or Jenner's methods. The presence of intra- or extra-cellular glycogen could not be demonstrated.

Chemical examination by Dr. Hurtley is not yet complete, but an interesting point has been made out in the total absence of β -oxybutyric acid in the blood, although the smell of acetone was very apparent in the breath, the blood, and the urine.

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THE OPERATIVE TREATMENT OF BULLET WOUNDS INVOLVING THE VERTEBRAL CANAL AND ASSOCIATED WITH COMPLETE PARALYSIS.

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DURING a prolonged visit to Antwerp I had under observation in the various hospitals six cases of lesion of the spinal cord caused by shrapnel or rifle bullets. In the worst two cases of the series where the symptoms suggested complete severance of the cord I advised exploratory operations, and through the kindness of the medical men in charge of the cases (Mr. H. S. Souttar, of the British Field Hospital, and Dr. Bremken, of the Elizabeth Hospital) I was permitted to perform laminectomy. The observations made during and after these operations appear to me to be of some interest, for in each case the cord and dura mater were found intact, although both patients displayed an almost complete loss of all reflexes and complete flaccid paraplegia. These symptoms, I consider, were due to intradural hæmorrhage, while the history of the two cases appears to indicate that operative procedure may be beneficial.

CASE 1.—Patient, aged 28, married, one healthy child. Examined first Sept. 19th, 1914. He was wounded on Sept. 10th, but was unable to say whether by shrapnel or bullet. At the time he was injured he estimated that the enemy were 200 metres distant. When hit he felt a blow and fell down, at the same time losing all sensation in both lower limbs, the right arm, and trunk. He was carried half an hour by comrades, travelled by vehicle for half an hour, then by motor to Aerschot, and from thence to Antwerp by rail. When admitted to the British Field Hospital he was in collapse and saline injections were administered. At this time the pulse was 120, vomiting was persistent, and 60 oz. of urine were removed after his arrival. It was found necessary to catheterise the patient twice daily. On Sept. 17th he was taken down to the X ray laboratory, when severe vesical hæmorrhage occurred and the patient again collapsed; the pulse rose from 90 to 145; temperature was 38.9° C. Digitalis and pituitrin were given, and after six hours he recovered. The urine was at this time strongly alkaline with an ammoniacal odour, while there was a suspicion of pus. The large quantity of blood in the urine made it impossible to examine it accurately. The vesical hæmorrhage was very troublesome for three days, during which time adrenalin washings were used and ergotine was given internally. After this attack the patient improved

somewhat, being able to take nourishment, but incontinence of both urine and faeces continued. The examination of the patient's back showed the point of entrance of the bullet at the level and to the left of the sixth dorsal spine as a brownish wound about the size of a halfpenny with slightly inflamed edges, but little, if any, exudate. At the right shoulder, where the bullet made its exit, the humerus was broken while the whole region was swollen and had a profuse purulent discharge.

The physical examination made on Sept. 19th, 1914, may be taken as presenting a general view of the patient. At this time he was a broad-shouldered, well-built man with a pulse of 90, but weak in character. There was absolute loss of motility and sensibility below a line passing through the upper part of the ensiform cartilage, or about the level of the seventh rib. Immediately above this level the patient complained of continuous pain and irritation over a girdle area. Associated with these distressing symptoms was a feeling of numbness ("as if swollen") also over the same area. Over the whole body below this line the reflexes had almost disappeared. The abdominal and knee reflexes were gone, but a very slight cremasteric reflex was apparently occasionally elicited. The true plantar reflex was absent, but after repeated deep pricking of the sole of the foot a slight flexion of the great toe was observed, evidently as the result of summation of stimuli. It was further noticed that this reaction was better marked if the patient was instructed to make a fist during the application of the stimulus. The Achilles jerk was elicited in a slight degree on both sides when the gastrocnemius was tapped with a metal hammer. The mobility of the hands and fingers appeared normal; any restriction of the movements of the right arm was due to the complicated fracture of the humerus. The abdomen showed marked dermatography. There was no upward movement of the umbilicus when the attempt to sit up was made. There was complete anaesthesia in regard to all forms of sensibility all over the body below the girdle zone of hyperæsthesia already described. Repeated lumbar punctures failed to get any cerebro-spinal fluid. The X ray photographs gave no information as to the nature or character of the deep lesion. On Sept. 20th, 1914, the field hospital not being provided with the necessary apparatus, Dr. Benham (the physician in charge of the case) invited Dr. Sano to come and examine the case with his portable apparatus. Dr. Sano stated that the rapid contraction of the quadriceps elicited on closing the galvanic current was more marked at the negative than at the positive pole. With the faradic current a moderately strong convulsion of the quadriceps was provoked, but if the electrodes were applied over the nerve the contraction was slow and wormlike.

From a general consideration of the symptoms it seemed possible, and even probable, that the lower part of the cord had nervous connexion with the upper, and further, that the symptoms might be caused by particles of bone pressing on the cord. As there was not the slightest sign of spontaneous improvement—on the contrary, a bed sore developed in the right heel, it was decided to do an exploratory laminectomy. The operation was performed on Sept. 24th. At the time of operation the patient was rather weak, pulse rapid and weak, and temperature 39.4°, this rise being the first of that degree during his stay in hospital. The hæmorrhage from the bladder was still present, but Mr. Souttar's urethroscopic examination indicated that it was due probably to vasomotor disturbances. The patient was placed in the prone position usual in kidney operations, and the posterior wall of the vertebral column from the second to the seventh dorsal vertebra removed. The cord so exposed was found to be non-pulsating, and it was necessary to remove a higher vertebral arch so as to expose the normal cord. The dura mater over the non-pulsating part of the cord was exceedingly tense, while the cord appeared to be of about twice its normal volume. The sides of the vertebral column were rapidly examined, but nowhere was any injury to the dura mater found. The condition of the patient necessitated the administration of saline and strychnine, and no time could be spent in attempting to examine the frontal portion of the cord, but the reappearance of pulsation in the cord was taken as proof that the operation had succeeded in relieving pressure. The wound was closed with silk and horsehair sutures. Sept. 26th: The temperature went down at once after the operation, while the distressing girdle pains ceased. Dr. Sano stated that the upper border of

anaesthesia had become lowered some 3 to 4 cm. or to the level of the ninth rib. The knee-jerk was still absent, but the plantar reflex was almost brisk on the right side. Sept. 29th: The anaesthesia had receded to below the costal arch. The right plantar reflex was practically normal, while the left was elicited only after repeated stimulation. I had to leave Antwerp on Sept. 30th, and further notes of the case have not yet reached me, but the patient is said to be in much the same condition (in Ostend, Oct. 10th).

In this case the loss of the deep reflexes would, according to Bastian, have led one to suspect complete rupture of the cord. The slight contraction of the gastrocnemius, elicited by tapping the tendon with the hammer, might have been taken as the result of direct muscular irritation, while the slight plantar reflex might have signified only that the lower part of the cord was intact. The two facts which led us to suspect that the bullet had passed over but had not ruptured the cord were the absence of the complete reaction of degeneration after nine days (Sencert),¹ and that muscular exertion of the left hand (the right arm being injured) tended to increase the slight rest of the plantar reflex. It is evident from the post-operative history that these suspicions were justified, and that no complete rupture of the cord existed.

CASE 2.—Patient, aged 21, wounded Sept. 9th, 1914, at Aerschot. Examined Sept. 26th. A wound made by the entrance of a rifle bullet was found in the left flank at the level of the fifth dorsal spine; the exit of the bullet was at a point 4 cm. to the right of the ninth dorsal spine. When struck the patient fell down and was instantly paralysed. He suffered severely from lancinating pains extending downwards to both knees, and there was incontinence of both urine and faeces. Below the level of the second lumbar segment there was complete loss of motility, while the reflexes were almost completely lost. Irritation of the skin below the scrotum, if continued for 10 to 20 seconds, was followed after an interval of about the same time by a slight contraction of the cremasteric muscle on the same side. With the faradic current both the peroneus and gastrocnemius reacted subnormally; on both sides the kathode make-and-break current resulted in approximately an equal contraction of both muscles. There was a large eschar on the right buttock, which was continually irritated by urine and faeces. Operation for this desperate case was, in consultation with Dr. A. Claus, decided on, and in preparation the eschar and the bullet wounds were treated with tincture of iodine the day preceding the operation. The cord was exposed between the fifth and seventh dorsal spines. The dura mater was exceedingly tense, while the cord was non-pulsating and much increased in volume. The dura mater was quite uninjured. Here again the bullet had passed by the side of the cord. Dr. Bremken and I were, however, able to satisfy ourselves as to the presence of certain splinters of bone which were pressing on the cord. These splinters we were not able to remove completely, but on pressing them back pulsations returned to the cord. It was decided not to open the dura mater because of the risks of infection, and the wound was closed. Sept. 29th: The patient vomited a great deal after the operation, and the temperature went up to 39.6° C., the pulse being 150. The dressing, which was soaked with blood, was removed and replaced by fresh dressing. A little later the temperature fell, and the patient said that a certain degree of "feeling" had returned to his legs. During the first few days of October this patient was forwarded to Ghent. I have not been able to gather any further information about him.

In severe cases of injury to the spine the important question is whether to operate or not. In all other fractures and dislocations the surgeon has a valuable guide in the X ray photograph, but it is of less use for injuries of the back. In fact, each case must be judged on its own merits, and no rule for general guidance can be formulated. We do not refer to neurological symptoms, on which a diagnosis of complete or incomplete rupture of the cord, might be based.

It has of course been definitely shown (Bastian, Bruns) that where the cord is completely severed

the deep reflexes are lost, but the mistake must be avoided of assuming from an absence of reflexes that the cord is completely cut. Sano² long ago urged the necessity for more frequently exploring these cases, but so lately as 1909, in a discussion held by the French Association of Surgery, the general feeling was distinctly adverse to explorative laminectomy because of the uncertainty of diagnosis. Electrical examination is advocated by Sencert³ as an aid in diagnosis; it is certainly helpful, but not infallible.

From my limited experience I venture to draw the following conclusions. 1. The absence of all deep reflexes must not be taken as an absolute proof of complete rupture of the cord. 2. The rapid fluctuation in pressure caused by a passing bullet appears to be sufficient to damage seriously the blood and cerebro-spinal fluid circulation in the cord and to induce complete flaccid paraplegia. It is probable that the pressure exerted by bony splinters is of secondary importance. 3. In cases of paraplegia following on bullet wound to the vertebral column, when there is no recovery of mobility or sensibility ten days after injury, laminectomy appears to be justified. 4. If the opening of the bony canal is not sufficient to restore pulsation in the cord the theca should be opened and the blood clot removed as thoroughly as possible.

It must, however, be pointed out that sanguine hopes of complete recovery should not be entertained. From our experience with caisson paralysis it is evident that the cord is peculiarly liable to damage through variations in pressure. Air bubbles are in such cases formed in the grey matter. It appears quite possible that a bullet passing the intravertebral canal, but leaving the cord itself unhurt, may cause, besides intrathecal hæmorrhage, similar lesions. It will be rarely, if ever, possible to remove the blood clot completely, and further experience must be looked for in order to ascertain whether lasting amelioration in such cases will ensue. Also local serous meningitis may supervene, and in such cases it is highly probable that the patient may benefit from the operation.

A CASE OF ACUTE TETANUS WITH RECOVERY.

(From an Evacuation Hospital, British Expeditionary Force, France.)

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SURGEON THE ALLIED FORCES BASE HOSPITAL;

AND

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THE following is a report of a case of severe acute tetanus with recovery, no prophylactic dose of antitetanic serum having been given.

Private —, wounded on Oct. 22nd, 1914, was admitted to this hospital on Oct. 26th with two shrapnel wounds, one, a large deep ragged septic wound situate on the anterior surface of the right thigh, about the junction of the middle and lower thirds, involving the extensor muscles, and passing upwards and backwards for about 3½ to 4 inches, cone-shaped in character; the other wound, situated on the posterior aspect of the left knee-joint, being about 2 inches by 1 inch in size and quite superficial,

¹ XXVme Congrès de Chirurgie, 1912, Paris.

² Archives de Neurologie, 1898.

³ XXIIIme. Congrès de Chirurgie, 1909, p. 842.

with a certain amount of inflammation surrounding it. The wounds were thoroughly cleaned up and the damaged tissue removed, irrigated, and dressed with fomentations. For the next few days the large wound was treated with iodine irrigations and boracic fomentations, the latter four-hourly, and the patient was apparently doing well.

On Nov. 1st, at 9.30 A.M., the patient complained of slight stiffness in the jaws and the muscles at the back of the neck, also that the wound in the thigh was "burning" very much. Temperature 99 F. Tetanus was at once suspected, and on inquiry it was ascertained that he had received no injection at the clearing hospital. The wounds did not appear worse; they were cleaning up fairly well. He was given a mixture containing the three bromides, iodide, and nopenhe, four-hourly, and an injection of morphia $\frac{1}{2}$ gr. was administered. In the afternoon he received an injection of 1500 units of antitetanic serum subcutaneously. In the evening the wound in the thigh was causing intense pain and "burning very much"; temperature 100°. He received an injection of morphia gr. $\frac{1}{2}$, and calomel was administered. On the 2nd the morning temperature was 100°. Trismus was very marked, risus sardonicus was obvious, and there were jerking movements all over the body. He received a further injection of 1500 units of antitetanic serum subcutaneously. On the 3rd the temperature was 100°. The patient was removed to a small darkened ward by himself. He now had very marked and violent jerking movements, and arching of the back. The abdomen was retracted and very hard and board-like. He was unable to be fed by the mouth and rectal alimentation was resorted to. On the 4th the patient's condition was about the same. He was given an injection of antitetanic serum intrathecally of 3000 units; chloral hydrate gr. xx. was given four-hourly, and the bromide mixture was discontinued. The injections were administered by Major (temporary) B. Hudson. The wounds were progressing satisfactorily, but were still very painful. Temperature 100°. On the 5th the wounds were less painful and the patient felt better. The jerking movements, especially of the legs, were still marked and the trismus, &c., were still present. On the 6th the temperature was 100°; stiffness of the jaws was relaxing and the jerking movements were less violent. The bromide mixture was resumed. On the 8th the trismus was less marked and the temperature was normal. On the 12th the patient was very cheerful. The jerking movements and the trismus were very slight and the wounds were clean. On the 18th all signs of tetanus had quite disappeared and the patient felt well. On the 22nd he was discharged to hospital ship.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM.—On Feb. 11th Sir Richard Biddulph Martin presided at the annual general meeting of this hospital, and in moving the adoption of the report referred to the improvements which had been made in the nurses' quarters and in the operating theatre. The finance and general work of the hospital were satisfactory. The War Office, he said, had accepted the hospital's offer of 12 beds for the wounded and three of the hospital's five surgeons had volunteered for active service. The seventy-ninth annual report, which was adopted, showed that during 1914 the total number of new out-patients was 1966, as compared with 1854 in 1913, and that the number of in-patients admitted last year was 732, as compared with 641 in the previous year. The number of operations was 686.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Ruptured Unilateral Solid Cancer of Ovary Removed.—Squamous-celled Carcinoma.—Inversion of Uterus.—Exhibition of Specimens.

A MEETING of this section was held on Feb. 4th, Dr. W. S. A. GRIFFITH, the President, being in the chair.

Dr. HERBERT SPENCER read notes of the case of a patient, aged 27, who had a Ruptured Soft, Solid Growth of the Left Ovary, measuring $5\frac{1}{2}$ by $3\frac{1}{2}$ inches, with about a gallon of free blood-stained fluid in the peritoneum. The tumour was removed; the other ovary, appearing healthy, was left behind. The patient subsequently had two children and remained well seven years after the operation. Similar cases were recorded by Hofmeier and von Velits. The tumour had the microscopic characters of a medullary carcinoma. Dr. Spencer did not agree with Pfannenstiel's opinion that in all cases of unilateral papillary tumours, cancer and endothelioma of the ovary, the other ovary should be removed, for he had seen examples of all those conditions remain well seven years after unilateral ovariectomy. He suggested, however, that, notwithstanding its microscopic characters, it was possible that the specimen shown was not malignant.—Dr. CUTHBERT LOCKYER said that he was not convinced from a casual examination of the microscopic section of Dr. Spencer's specimen that it was a carcinoma; he thought it would very likely prove to be an endothelioma, and if that were so the long immunity from recurrence would be more easy to understand, as endothelioma of the ovary was far less malignant than solid carcinoma of that organ.—Dr. HENRY BRIGGS remarked that the tumour shown and admirably described by Dr. Spencer stirred the unsettled problem as to what these tumours really are. As solid adenomata, in the Departmental Museum of the University of Liverpool, Dr. Briggs said he had had them illustrated and catalogued for over 15 years; repeated and recent revisions of the catalogue had left them as they were, awaiting any more acceptable advance in histology.—Dr. AMAND ROUTH asked how Dr. Spencer proposed to decide whether the removed tumour was malignant or benign at the time of operation, and what course he would now pursue as regards the second ovary if he decided that the one removed was carcinomatous?—In reply Dr. SPENCER said he saw no evidence that the tumour was an endothelioma; structurally it was a typical medullary carcinoma, and it did not resemble microscopically the endothelioma he had met with in a dermoid. In reply to Dr. Routh's question, he thought in the case of such a soft tumour as the one shown (which in the fresh state resembled a spleen), it would be difficult to cut satisfactory rapid sections at the time of operation. He had not yet decided whether the tumour was malignant or benign, but had made a suggestion on that point in his paper. A similar case he would treat similarly. If the ovary, apparently normal at the time of operation, grew subsequently, he would remove it, but with very little hope that malignant disease affecting both ovaries would not recur.

Mr. GORDON LEY (for Dr. RUSSELL ANDREWS) read a short communication on Squamous-celled Carcinoma occurring in a Cystic Teratoma of the Ovary.

Dr. R. D. MAXWELL read a short communication on Inversion of the Uterus, (1) Acute, (2) Chronic.—The subject was discussed by the PRESIDENT, Dr. J. P. HEDLEY, Dr. ROUTH, Dr. BRIGGS, Dr. SPENCER, Dr. E. L. HOLLAND, Dr. COMYNS, Dr. BERKELEY, Dr. T. G. STEVENS, and Dr. G. F. BLACKER.

Mr. GORDON LEY demonstrated a Fibroid of the Uterus, showing Invasion by Tubercle.—The specimen was remarked upon by the PRESIDENT, Dr. STEVENS, and Dr. LOCKYER.

The PRESIDENT showed an example of the "Bowel Pack," suggested by Mr. J. L. Aymard, of Johannesburg, in THE LANCET of Jan. 16th, p. 150, which he had made, and found that it answered the purpose well. It is made by coiling fine wire on to a pad of "cellular" cloth, the wire being sewn by a running stitch along its whole length. The wire he used was No. 22 gauge pure tin fuse wire, and was covered in by a single layer of lint sewn on to the pad.

When one of appropriate size is placed in position it keeps the bowels out of the way of the area of operation, and is a valuable improvement on the ordinary pad. It could be bent into any shape without injury.—Remarks followed by Dr. COMYNS BERKELEY, Dr. J. S. FAIRBAIRN, Dr. MAXWELL, and Dr. SPENCER.

CLINICAL SECTION.

Exhibition of Clinical Cases.—So-called Frost-bite.

A MEETING of this section was held on Feb. 12th, Mr. J. CHARTERS SYMONDS, the President, being in the chair.

Dr. JAMES GALLOWAY showed a case of Splenomegalic Anæmia. The patient, a boy aged 8½, had been observed by his mother to have a slight swelling of the abdomen 18 months ago. This enlargement had increased. He was said to have had an attack of jaundice about 15 months ago; his complexion was said to have become paler, and a year ago a severe epistaxis occurred. There had been an eruption of small purpuric spots and an attack of hæmatemesis a few days before he was admitted to hospital in November, 1914. Since that date he had been under constant observation. At first his condition became worse and another attack of hæmatemesis with copious melæna occurred. The lad was pallid and had a slight degree of protrusion of the abdomen; the spleen was markedly enlarged, reaching the level of the umbilicus; the lower edge of the liver could be felt below the costal margin, and this organ apparently extended higher in the abdomen than normal; probably it was enlarged. The blood had been frequently examined and the following report was characteristic. Red blood, fragility normal. Wassermann negative. Rouleaux and fibrin formation fair. Red blood corpuscles, 2,900,000 per c.mm.; hæmoglobin, 30 per cent.; colour index, 0.5; white blood cells, 840 per c.mm.; polymorphonuclear leucocytes, 57.5 per cent.; small lymphocytes, 35.0 per cent.; large lymphocytes, 1.5 per cent.; eosinophiles, 1.5 per cent.; basophiles, 1.0 per cent.; large hyaline, 3.5 per cent. There was no history indicative of syphilis. The father and mother appeared to be healthy. There were three sisters and one brother who were in good health. An uncle on the father's side had hæmatemesis associated with a swollen abdomen, but had recovered his health. An uncle on the mother's side had been treated for hæmatemesis and ascites. The question of removal of the spleen arose.

Mr. H. MORRISTON DAVIES showed the following cases: 1. A case of Mediastinal Teratoma. The patient, a man aged 21, was admitted to hospital in March, 1913. Six weeks previously he had noticed a swelling over the upper part of the left chest, which increased rapidly in size and became red and painful. He was admitted to an infirmary with a temperature of 104.8° F. The swelling was incised through the third space and pus escaped. It was noticed that the pus was of a peculiar consistency. A few days later, as there was no improvement in the patient's condition, another opening was made in the anterior axillary line, portions of the fourth rib being excised. The general condition became worse, and there was expectoration of large quantities of offensive sputum. Some hairs were found in the discharge from the wound, and the condition was recognised as an infected dermoid. He was then transferred to Mr. Davies's care, extremely emaciated, and in a condition of profound toxæmia. His temperature fluctuated between 102° and 104°. The skin around the opening was excoriated, and there was slight bulging of the surrounding chest wall. There was a copious discharge of pus, sebaceous material, and occasionally hairs. The heart was displaced to the right, and cough was accompanied by offensive expectoration. Under local anaesthesia the third left costal cartilage was removed, and the finger-like processes of the teratoma could be seen. A cavity was found extending inwards to the right of the sternum, outwards to the anterior axillary line, downwards to the fourth space, and upwards to under the first cartilages on both sides. A week later, as drainage was inadequate, portions of the third and fourth left ribs were removed under open ether anaesthesia. The patient suffered very greatly from shock, but improved slightly during the succeeding weeks. After two months the left second costal cartilage was removed, the second and third right costal cartilages were divided, and the upper part of the body of the sternum was excised. After another month the teratoma was partially separated from the pericardium.

Two months later further attachments were divided so as to give better drainage. These operations were done under chloroform anaesthesia, and were followed by great shock. The patient improved, and cough and expectoration ceased. Subsequently the projecting portions of the teratoma were on five occasions excised under anaesthesia by gas and oxygen. In June, 1914, Mr. Davies began to separate the main mass of the teratoma from its attachments to the pericardium, aorta, and surrounding structures; it required five operations before the mass was excised. This part of the growth, half of which was exhibited, measured 13 cm. by 8 cm. by 7.2 cm. It contained, in addition to stratified epithelium, hairs, sebaceous matter, mucous follicles, cartilage and bone, cysts containing mucus, and lined by ciliated columnar epithelium. A further portion was treated in the same way and excised in November, 1914; this measured 7 cm. by 5 cm. by 4 cm. Very little of the teratoma remained. The granulations over the pericardium and other structures were becoming rapidly covered with epithelium, and the cavity from which the teratoma was removed had become obliterated to a great extent, partly by the mediastinum and partly by the expansion of the lung. 2. A case of Bronchiectasis treated by Ligation of Branch of Pulmonary Artery. The patient, a youth aged 17, was admitted to hospital in May, 1913. Seven years ago he had a severe attack of bronchitis, from which he never "properly recovered." During the previous year his cough was much worse and he expectorated large quantities of offensive sputum. Physical signs consisted of dulness, weak breath sounds, and coarse râles over the right base. The sputum contained many different forms of organisms, including streptothrices. Early in June the lung was completely displaced by nitrogen, and four days later the right side of the chest was opened through the fourth intercostal space and portions of the fourth and fifth ribs removed. The branch of the pulmonary artery going to the lower lobe was then tied at the root of the lobe. The patient was anaesthetised by infusion of ether and the lung was kept partially expanded by Mr. Davies's hyperatmospheric apparatus. As soon as the chest was opened the vagus was injected immediately above the hilum of the lung with 2 per cent. of novocaine. The patient experienced practically no shock after the operation. The temperature rose on the third day and 24 oz. of clear fluid were aspirated from the right side of the chest. A week later the temperature was still up, and turbid fluid, which contained streptococci, was found in the pleural cavity. This was drained through an opening in the incision. After three days, as the discharge and sputum were now offensive, a counter-opening was made behind through the ninth rib under local anaesthesia. From this time recovery was uneventful. By August the sputum was reduced to about ½ dr. only per diem and a small sinus was present; he was discharged to a home. The patient had since been working for many months. He said that he felt perfectly well and only occasionally coughed (two or three times a week). A skiagram taken at the beginning of last year showed a shadow at the base of the lung, but in one taken this year the shadow had greatly diminished, and the diaphragm was visible for the first time since he came under Mr. Davies's care. 3. A case of Bronchiectasis treated by Rib Mobilisation (Wilm's operation). The patient, a girl aged 15, deaf and dumb, was admitted to hospital in September, 1913, with extensive bronchiectasis involving the whole of the right side. Over the left base the percussion note was impaired; the breath sounds were harsh; expiration was prolonged and there were moist sounds. Nitrogen displacement was tried, but failed, owing to adhesions. Portions of the first nine ribs were removed through a posterior incision. Ten days later the second stage of the operation was done, the first to the seventh costal cartilages, including the costal margin, being cut away. There was slight shock after each operation. The patient's general condition had much improved. The cough and sputum were greatly diminished, and the latter was no longer offensive. The patient, who previously was often drowsy and apathetic, had become a bright girl and able to go out to work for the whole of each day. 4. A case of Osteitis Fibrosa Cystica. The patient, a girl aged 14, fell on her left hip 18 months ago. Pain was slight and passed off in the course of the day. In March, 1914, she again fell on her hip, and since then she had had occasional slight pain and had limped continuously. She

was seen in April, and a skiagram then taken showed a condition of affairs very similar to that which could be seen in one taken this month. There were very slight limitation of flexion, more of extension, some limitation of abduction and adduction, marked limitation of internal rotation, but none of external rotation. The range of movement in this direction was, however, not increased. There was shortening of the limb, and the great trochanter was raised to above Nélaton's line to an extent practically corresponding with the shortening. Thickening at the upper end of the shaft and of the neck of the femur could be felt. The skiagram showed curvature and enlargement of the upper end of the shaft and of the neck of the femur; the bone was expanded and the cystic condition and septa were easily seen. The epiphysis of the great trochanter was unaffected. The only alteration since April was a slight increase in expansion of the outer aspect of the bone.

Mr. STANLEY BOYD exhibited a case, similar to that last shown by Mr. Davies, in a girl aged 12. There was expansion of the upper end of the left femur, and a skiagram showed a central translucent area and also a fissure. There had been pain in the upper part of the femur for which the child had been kept in bed. After going out she had been knocked down by a boy while at play, when the fissure had been produced. At an operation, tissue was removed from within the swelling, which looked like the growing edge of sarcomatous growth, but which microscopically proved to be connective tissue undergoing ossification. Since then the translucency had become almost normal, and the child ran about free from pain or discomfort.

Mr. R. H. JOCELYN SWAN read a short paper on So-called Frost-bite, based on 100 cases among soldiers returned from the front, 80 of whom had been under his care at the Royal Herbert Hospital, Woolwich. The only causal condition common to all was continuous standing with wet feet. There were two distinct groups of cases: (1) Those in which there was little destructive change, but marked subjective symptoms were present; and (2) those in which there was gangrene of various amounts from a superficial skin lesion to that in which one or more toes were destroyed. In the first group there were cutaneous anaesthesia and analgesia. Joint sense and vibration sense might be lost. Patchy hyperaesthesia was sometimes present, and there was pain on movement or pressure. He regarded the condition as resulting from nutritional change and not as a neurosis, which had been suggested by some. With respect to the second group the gangrene was often greatest in the great toe, and the majority were examples of dry gangrene. It was more usual for one foot to be affected, but there was no ready explanation as to why this should be so. The gangrene had no relation to points of pressure. He thought that the condition was attributable to the dependent position of the feet, to wet, and to want of exercise, and not to cold. Canadian officers had told him that the condition was quite unlike that of true frost-bite with which they were familiar. As preventive measures he suggested the wearing of a thin mackintosh covering outside the sock, but inside the puttee, and the free use of vaseline or whale oil to protect against the wet, and that the boots should be large enough to allow of free movement of the toes. The men should be instructed to carry out this movement.—Dr. GALLOWAY likened this condition to thrombotic phlebo-arteritis obliterans.—Dr. E. G. FEARNSIDES said that the cases could be classified into three groups: (1) Those with objective signs with perhaps some sensory loss, but without subjective symptoms; (2) an intermediate group with slight alteration of sensation, showing blunting of sensation, but without anaesthesia, and a band of hyperaesthesia at the upper border of the affected area; and (3) those in which sensation was lost over an area of the stocking type, which in ordinary civil practice would be ascribed to neurosis. In the Balkan War it had been agreed that the objective changes were vascular in origin.

LARYNGOLOGICAL SECTION.

After-treatment of Submucous Resection of the Nasal Septum without Splints.—Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 5th, Dr. WILLIAM HILL, the President, being in the chair.

Sir WILLIAM MILLIGAN read a note on the After-treatment of Submucous Resection of the Nasal Septum without Splints. Having used Whitehead's varnish for painting

between the perichondrial flaps and stitches and varnish for the line of incision for several years, he concludes that there is less discomfort and better drainage than after packing the nose. The after-results have been good, and there has been no haemorrhage or haematoma of the septum.—Dr. P. WATSON-WILLIAMS said that packing the nose might cause serious disadvantages, as in cases of sinusitis.—Sir STCLAIR THOMSON agreed, but stated that in simple cases his practice had been to replace the whole of the septum in small pieces and to pack the nose with sponge tissues so that the parts remained in position.

The following cases and specimens were shown:—

Sir WILLIAM MILLIGAN: A woman, aged 30, with Chronic Lymphangitis of the Nose commencing three years earlier.—Dr. WATSON-WILLIAMS had seen similar cases with latent sinusitis.—Mr. H. TILLEY suggested a blood culture for vaccine treatment.—Dr. BROECKART had obtained excellent results by excision of the hypertrophied tissues.

Mr. E. D. DAVIS: 1. A boy, aged 14, from whom he had completely enucleated a large Nasopharyngeal Fibroma with a strong dissector and the finger without splitting the palate under intratracheal ether. 2. Three post-mortem specimens illustrating Diseases of the Pituitary Body treated by Killian-Hirsch operations.—The PRESIDENT referred to the dangers of these operations.—Mr. W. G. HOWARTH said that it was important to distinguish the cases in which the disease was below the sella turcica from interpeduncular and pontine tumours. The latter were generally fatal.

Dr. W. H. KELSON: A man suffering from Laryngeal Obstruction following acquired specific disease. The larynx showed fleshy masses resembling pachydermia.

Mr. W. M. MOLLISON: A patient with Traumatic Fixation of the Right Vocal Cord and Displacement of the Right Arytenoid Cartilage. He had been operated on ten years back for goitre. Such a condition was common after goitre operations; sometimes the lesion was caused by pressure of the thyroid gland and antedated the operation.

Mr. W. STUART-LOW: 1. A man with Dyspnoea caused by Tracheal Compression. Skiagrams of the chest (exhibited) showed a definite shadow, but there was doubt whether this was caused by aneurysm or mediastinal tumour.—Dr. KELSON suggested the possibility of a syphilitic mass. 2. A patient with Epithelioma of the Pharynx and Tongue treated by Diathermy. The glands of the neck had also been punctured with the cautery with marked improvement.

Mr. C. I. GRAHAM: A similar case to the foregoing after operation and dissection of the neck.

Dr. JOBSON HORNE: An Epithelioma of the Tonsil in a woman aged 43.

Mr. H. L. WHALE: A circular piece of tin $1\frac{1}{2}$ inches in diameter, bent and jagged, removed from the gullet of a soldier by oesophagotomy. Recovery was uneventful.

Mr. C. W. M. HOPE, Mr. H. BUCKLAND JONES, and Dr. JOBSON HORNE: Soldiers who had had Gunshot Wounds of the Larynx or Pharynx.

Dr. DAN MCKENZIE: A patient with Synechia of the Nose treated by Diathermy with excellent result.

Mr. TILLEY: Three children of the ages of 7, 8, and 10 years, who had had Acute Suppuration of the Nasal Accessory Sinuses. Complete recovery followed operation in all cases.

Mr. GRAHAM: A patient with Tuberculosis of the Nasal Fossæ, and sections of the tissue containing tubercle bacilli stained *in situ*.

Sir STCLAIR THOMSON produced a report by Professor Shattock on his specimen of Laryngeal Growth, exhibited in December, 1914, stating that the disease was early squamous-cell carcinoma.

Dr. JOBSON HORNE demonstrated microscopical sections of Pachydermia of the Larynx.

MEDICAL SOCIETY OF LONDON.

Discussion on Gunshot Wounds of the Head.

A MEETING of this society was held on Feb. 8th, Sir JOHN BLAND-SUTTON, the President, being in the chair.

Sir VICTOR HORSLEY opened a discussion on Gunshot Wounds of the Head. His paper is published on page 359 of this issue.

Sir DAVID FERRIER said that were it not for the President's express invitation he would not have ventured to take part in the discussion, for he had little or no experience of

the immediate effects of gunshot wounds of the head. He would like, however, to express his high appreciation of the admirable exposition which Sir Victor Horsley had given of the mechanism of this class of injuries. His own experience was limited to the after-effects of gunshot wounds of the head in the form of permanent lesions of different parts of the brain. These did not differ from the effects of lesions caused by disease or other forms of injury, and corresponded in their symptomatology with the position of the lesion according to the recognised principles of cerebral localisation. Thus there might be met with hemiplegia, or monoplegia of different types; aphasia, motor or sensory; affections of vision, hemiopic or quadrantic; as well as a notable absence of either sensory or motor impairment in cases of lesions of the frontal lobes or other so-called "silent" areas. It was astonishing what extensive lesions of the brain were compatible with a fair degree of both mental and physical health. One of the frequent and distressing effects of lesions of the motor area was the liability—apart from the monoplegia or hemiplegia—to Jacksonian epilepsy conditioned, without doubt, by the septic character of the lesion, and the tendency of this epilepsy to persist, even after repeated operations with a view to removal of the irritative focus. Sir Victor Horsley was well acquainted with a case of this kind—an officer wounded in the Boer War, who was still hemiplegic and epileptic after a severe wound of the left motor area, though he had been operated upon on several occasions since that time. In regard to the immediately or rapidly fatal effects of gunshot wounds of the head it was not the result of the cerebral lesion as such (provided it was not in the medulla oblongata), but, as Sir Victor Horsley and Dr. Kramer had shown, of the hydrodynamic effect of the passage of bullets of high velocity through the incompressible semifluid contents of the cranium. This caused compression or compression with effusion, and consequent paralysis of the vital centres of the medulla oblongata. The primary cause of death, as Sir Victor Horsley and Dr. Kramer had shown, was paralysis of the respiratory centre. Cushing was of opinion that the cessation of respiration is secondary to vaso-motor paralysis, but the experiments of Dixon and Halliburton had amply confirmed those of Horsley and Kramer. They had found that when the pressure of the cerebro-spinal fluid is artificially raised by the injection of saline into the subcerebellar cistern, the respiratory centre fails before either the cardiac or vaso-motor centres, and that death occurs unless artificial respiration is kept up. This had an important bearing on treatment. Sir Victor Horsley had pointed out that in certain cases death might be warded off by timely artificial respiration. This, of course, would only be available in cases in which there was no intracranial effusion. But it might be possible that with artificial respiration and free opening of the skull to relieve the intracranial tension, life might be saved. Perhaps some of the surgeons at the front, when they read of the proceedings of that evening, might be induced to resort to such treatment when appropriate occasions arose.

Mr. RICHARD WARREN said that the cases on which his contribution to this discussion was based were met with partly in civil and military practice in England, but more in the service of the Belgian Field Hospital at Furnes, where he had had the opportunity of seeing patients within a few minutes of injury (from bombardment of the town), or within a few hours at the outside (when brought in from the firing line a distance of five or six miles). The subject was therefore being regarded rather from the point of view of immediate results than of the more remote effects, which also formed so important a part of the surgery of the cranium and its contents. The cases met with fell into two groups. Group 1. Injuries of the cranium with little or no effect on the brain. These were for the most part trifling, but might present points of interest as in the following case, which was sent to him by Dr. A. Craster. A Belgian, aged 29, had been struck by a shrapnel ball three weeks before in the right temporal region. There was a small well-healed scar in this region, not obviously inflamed, but the seat of intense pain and agonisingly tender on palpation. The pulse was 80, the temperature slightly subnormal, and no other signs of intracranial trouble were present. A flap was turned down, including the scar; the tissues were found to be matted and stained with lead,

and the pericranium was infiltrated and separated more readily than normally from the skull. Thinking that there might be some inflammatory collection below the skull he trephined, but found the subcranial space and dura normal, nor were there any spicules of bone from a concealed fracture. The scar and thickened periosteum were cut away and the patient made an uninterrupted recovery with complete relief of symptoms. Group 2. Cases where the skull was fractured, whether in the form of a punctured fracture or one widely open and depressed. In most cases of this sort the dura was penetrated and the brain lacerated to a varying degree whereby these military cases differed from a large number of those met with in civil practice in which the dura remained intact and the prospect of infective meningitis was much less. As regards fractures of the skull, puncture fractures were more often the result of bullet or shrapnel wounds, whilst the bursting of common shell was more prone to cause a widely open depressed fracture. Nevertheless, the last result might follow the impact of a bullet, as was shown in the following case. A bullet entered the left orbit in a lateral direction and completely scooped out both eyes, the nasal fossæ, and a good part of the floor of the anterior fossa of the skull, with the result that there was much brain exuding into the widely opened nasopharynx. In spite of the severity of the lesion this patient was doing well six days later, when he had to be evacuated owing to the town being shelled. The main dangers from injuries of this type were primarily from the shattering of, or pressure by effused blood, &c., on some vital part of the brain and later from the onset of meningitis, which was relatively common, since the dura was practically always opened. The widely opened fractures were also dangerous from the effects of contre-coup on parts of the brain other than that immediately concerned in the fracture. It had long been recognised that the anterior part of the brain could be grossly damaged with but little immediate ill-effects, and he had been a good deal struck by the relative well-being of such patients. For example, one patient arrived with a large depressed fracture of the right frontal bone (the result of a shrapnel burst) and a corresponding black eye like an over-ripe tomato, and yet he was quite conscious, calm, and with but little shock. There could be little doubt that when the skull was shattered the force of concussion was thus in many instances broken and the brain as a whole saved from severe and possibly fatal shaking. In other cases of this nature, however, there was widespread pulping of the brain and death was rapid. The danger from meningitis once the dura was opened (as was the rule in these cases) was considerable, both in the punctured and widely open variety; still, a number of cases, even where a large amount of brain had prolapsed, escaped this complication in anything more than a local degree, and the large fungating hernia cerebri ultimately contracted and healed over. As regarded treatment, the main points seemed to be to render the parts affected as aseptic as possible, for which purpose the weak alcoholic solution of iodine was well adapted. The second point was to render the openings in the skull (where the latter was penetrated) sufficiently large to avoid compression, which might follow the swelling of the necessarily inflamed brain, and, at the same time, to remove foreign bodies which might promote sepsis. This was often a simple matter in the case of shell wounds with wide openings, as the loose fragments of skull could be readily picked off and the rough edges of the aperture smoothed with rongeur forceps. The smaller holes caused by bullets were more likely to require an opening with the trephine to afford due access. Another point to be considered was the advisability of searching for bullets, bits of skull, &c. This should be done at once by searching carefully along the track of the penetrating object with a large blunt probe the size of a No. 10 catheter in the case of small wounds caused by bullets, or with the sterile finger in large lacerations. With a large blunt instrument it was not difficult to keep on the track of the foreign body and avoid further injury, whilst the removal of bullets, pieces of skull, &c., would diminish the risk, at a later date, of infective meningitis and encephalitis. Note should, of course, be taken of wounds of exit where the bullet had completely traversed the head, as finding such clues would render prolonged searching for bullets unnecessary. When possible, radiographic assistance was valuable, but under the emergencies of active service it

was often necessary to rely on the large probe or finger. If no bullet could be found after a brief but thorough search one should desist, and later, should the patient survive, accurate estimation should be made by means of radiograms of the position of the bullet or fragment of shell, when, if in an accessible position, it would as a rule be sound policy to attempt its removal. The mortality of the cases with depressed fractures and lacerated brain was undoubtedly heavy, but he could not help being struck with the powers of recovery shown in many instances and regarded with some degree of hope even very extensive injuries of the brain, provided that these affected the more superficial parts of the organ.

Mr. W. H. H. JESSOP called attention to the frequent occurrence of papilloedema after fractures of the vault by bullet and shrapnel, and to the rapid disappearance of it after decompression or trephining. Mr. M. W. B. Oliver had told him that in 30 cases of vault fracture he had observed the condition in 16 cases, and that in every case the ocular signs had disappeared quickly after operation. The swelling of the optic discs was not great, and as a rule there were no hæmorrhages or effusion along the vessels; there was a ring of oedema round the periphery of the swollen disc. The vision was normal or little affected. The early occurrence and complete disappearance of the ocular signs on relief of intracranial pressure pointed to the papilloedema being due to pressure. The term "optic neuritis" ought not to be used for these cases. Two very interesting cases he had seen at No. 1 Base Hospital. One, under Mr. W. D. Harmer, was due to shrapnel wound on the side of the head; the patient was at first completely blind and deaf. After 36 hours the complete blindness was followed by homonymous hemianopsia. The central vision in each eye became normal after operation, and the deafness also was recovered from. The other patient, under Mr. McAdam Eccles and Mr. G. E. Gask, had complete paralysis of the third, fourth, and ophthalmic division of the fifth nerves; the optic disc and vessels were normal, and the vision and fields of vision also normal. The X ray photographs showed six small pieces of shrapnel lying close together near the cavernous sinus. No changes had taken place after six weeks.

Major L. BATHE RAWLING, R.A.M.C.(T.), said that the few remarks which he had to make must necessarily be related to such cases of head injury as were seen after their admission into military hospitals in this country, of men wounded from anything from three days to three weeks previous to admission here. However, so far as he could see, there was less change in surgeons' views as to the correct surgical attitude in this particular branch of surgery than in some others. For example, they had had to alter somewhat their ideas as to fractures of the long bones, more especially in the event of the injury being compound and associated with prolonged suppuration, kept up by the presence of many loose fragments of bone, with perhaps some additional foreign body. Early and extensive operations conducted for the removal of such sources of irritation had not been followed by the success anticipated. Surgery of fractures of the long bones had become rather conservative. With regard to head injuries, however, his experience had been such that he was more than ever convinced that operative interference should be carried out at the earliest possible moment, not necessarily at the field hospital, where conveniences might be wanting, but certainly at the base hospitals in France, and if not there, as soon after their admission into hospital in this country as was possible. Such methods of treatment had been advocated by Bowlby, Makins, Spencer, and others in the South African War, by Lawford Knaggs and himself in this country, and by many others. In his book on the "Surgery of the Skull and Brain," published in 1912, the following statement occurred: "It is accepted that all bullet wounds of the skull and brain call for early operative interference, it being granted that the condition of the patient is compatible with such treatment." In other words, that all cases, unless hopelessly bad, should be operated on as soon as possible. He was convinced that this interpretation was correct, and he could not understand the attitude of those surgeons who advocated and carried out an expectant form of treatment. He had had the opportunity of observing the conditions associated with, and arising from, both varieties of treatment. There was no comparison between the results obtained. The expectant treatment was followed by a much higher rate of

mortality and, in addition, in those patients who recovered without operation, the presence of depressed bone, blood clot in relation to the membranes and brain, and foreign body would certainly assist in the development of those remote effects of head injury which were so well known, of such frequent occurrence, and so difficult to remedy. Consequently, from his general experience of head injuries and from that derived from cases under his care at the 1st London General Hospital, he advocated most strongly early operative interference. This consisted (1) in the treatment of the wound of entry or attempted entry; and (2) in the removal of the foreign body. The presence of a foreign body, whether embedded deeply in the brain or not, might be determined with reasonable certainty by investigating the exact nature of the wound, whether direct, glancing, &c., though, so far as his experience went, the absence of foreign body in the brain was the exception rather than the rule. In all cases, however, X ray pictures should be taken before the operation, stereoscopic if possible. Such pictures would not only show the position of rifle bullets, shrapnel bullets, or casing, &c., but would also afford direct evidence as to the presence and position of depressed and in-driven fragments of bone. The fact that nearly all serious cases of head injury were septic, like so many other wounds that came from the front, merely strengthened his argument for early operation. The prolongation of suppuration was dependent on the presence of these depressed fragments and foreign bodies, and it would continue so long as these were allowed to remain, with the consequent daily threatening of brain abscess, hernia cerebri, and meningitis. So far as actual technique was concerned, the head should be shaved completely—a process that might require the use of several razors, the hair being matted with dirt, sand, and blood. The head should then be washed thoroughly with scrubbing brush and soap, dried, and painted over with iodine. When this had been done the scalp tourniquet should be applied, for it was important that the loss of blood from scalp vessels should be controlled efficiently. The scalp wound should then be enlarged freely in the required directions, the flaps thrown back, their edges touched up with pure carbolic acid, and their under surface with iodine. The condition of the bone could then be investigated. Fractures limited to the external or internal tables were rather more of text-book prominence than of actual occurrence, and it was necessary in practically all cases to trephine or remove loose fragments of bone in such a manner as to expose freely the underlying dura mater and brain. Depressed fragments should be elevated, small loose fragments of bone picked away, and larger fragments treated in a similar manner or thrown back if they retained any direct connexion with scalp or pericranium. In any case it was advisable to obtain a good view of the dura mater, and the surgeon should err on the side of removing too much bone rather than too little. Blood clot, derived from torn meningeal vessels or from the diploic tissue, should be wiped away and bleeding controlled, dural vessels being under-run and diploic foramina blocked with wax. With a dry field, the dura now remained for inspection. If uninjured, the scalp wound might be approximated, with free and efficient drainage. If torn, the dura should be slit up and a careful investigation carried out for fragments of bone or foreign body, all of which might be carried deeply and widely throughout the underlying brain substance. All such loose fragments must be gently picked away, with all respect to the surrounding brain substance. During this procedure a stream of saline solution at a temperature between 110° and 115° F. would help to keep a clean field, washing away blood, brain, débris, &c. The ordinary probe would assist in the detection of such foreign bodies, and the telephone probe in the presence of metallic substances. Personally he had tried the telephone probe on several cases previously to the war, that pattern being utilised which had been invented by Sheen and described in 1905, and which had been improved recently. He must confess, however, that he was not enamoured of the telephone probe; the presence of any foreign body could be detected with the ordinary probe with almost equal facility, and it mattered not whether the foreign body was osseous or metallic—it must be removed. Though of opinion that a considerable area of bone might require to be removed in the investigation of the injury, he thought that one should be much more judicious in the search for the foreign body in the brain. Needless probing

could only do harm, and unless the foreign body was detected with ease it was preferable to wait, further skiagrams being taken to investigate its exact position, and a second operation being performed later. The position of a bullet might demand that the exploration should be carried out over an area distinct from that of the entry of the bullet. Drainage must always be of the most efficient type, even to leaving a considerable area of brain exposed to the surface. No perforating wounds of the skull had come under his care—doubtless due to the fact that they were so frequently fatal in character. The more favourable cases were those in which the osseous and cerebral lesion occupied the frontal and temporo-sphenoidal regions. The more fatal lesions were situated in the posterior half of the skull, especially in the cerebellar region. He would suggest that after the lapse of a few years the society should hold an inquiry into the after-results of these head injuries. There would, he feared, be plenty of material, and he would add that he was sure that the material would be all the more plentiful if operative interference was inadequate or postponed and, more especially, if such methods were not carried out at all.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

The Vaccination Acts.

A MEETING of this section was held on Jan. 8th. Dr. T. P. C. KIRKPATRICK, the President, from the chair, read a paper defining his position with regard to vaccination, and expressing his belief in its efficacy to prevent small-pox in those who were sufficiently often revaccinated. He gave a short synopsis of the history of vaccination in the United Kingdom. In spite of the various Acts, the proportion of the population protected from small-pox by vaccination was steadily diminishing, and showed a tendency to diminish more rapidly in the future. He thought that it would be impossible either to make the compulsory clauses of the Vaccination Acts more stringent or to compel persons to be revaccinated, and under these circumstances vaccination would afford an unreliable protection from outbreaks of small-pox. The experience of Leicester gave hope that such protection might be afforded by good sanitation. Something should be done at once to meet the growing danger of epidemic small-pox.

Dr. NINIAN FALKINER considered vaccination necessary for the protection of the population. Referring to the last Act mentioned in the paper—the Act of 1907—the year 1905 might be taken as the maximum of protection by vaccination in England, Wales, Scotland, and Ireland. At that time the percentage of the population vaccinated in the different countries was: England and Wales, 76 per cent.; Scotland, 85 per cent.; and Ireland, 82 per cent. The figures for the year 1911 (four years after the passing of the Act) were: England and Wales, 52 per cent.; Scotland, 58 per cent.; and Ireland, 73 per cent.; and when the figures for 1913 were available it was expected that a further decline would be shown in the number of those vaccinated. The percentage of conscientious objectors in England and Wales had increased from 8.4 per cent. to 23.4 per cent., and in Scotland from 5.6 per cent. to 24 per cent.

Sir JOHN MOORE referred to the perfunctory enforcement of the Notification Act in Ireland. He looked upon it as a farce. He was quite sure that sanitation would not afford any protection against small-pox in Ireland so long as there were no medical superintendent officers of health except in Dublin, Belfast, Cork, and Londonderry. He quoted Dr. C. K. Millard, whom he looked upon as sitting on the fence—"I am prepared to admit that a universal system of vaccination and revaccination, if effectively carried out, would abolish small-pox." What was wanted, Sir John Moore suggested, was a Minister of Public Health. The Local Government Board in Ireland were complaining that the Vaccination Acts were not being enforced, and instead of getting a mandamus against the guardians whose duty it was to enforce these Acts they approached the corporation of Dublin and pointed out

the necessity of providing extra hospital accommodation for expected cases of small-pox. He suggested that the most practical and effective protection against small-pox was to be found in aseptic primary vaccination, aseptic secondary vaccination, and, of course, sanitation in the fullest sense of the term.

Dr. R. J. ROWLETTE said that Sir John Moore had told them the best methods for preventing small-pox, and he (Dr. Rowlette) was in thorough agreement with him; but the immediate problem was how much of that programme was practical. He considered that the whole programme was not practical. He did not think, nor had Sir John Moore suggested, that revaccination could at present be made compulsory. As to the question of sanitation, he looked upon Ireland as without sanitation. There was only one whole-time medical officer in Ireland. No attempt was made by any section of the community to make sanitation more efficient in Ireland. The community paid certain medical men from £5 to £15 per annum to look after the health of a large district, which showed that the work was not taken seriously; on the other hand, vaccination had been taken seriously, and was fairly well done. Sanitation at the present time was impossible in Ireland, since no one seemed to think it was required, and whatever chance there was of carrying out primary vaccination there was no chance of sanitation.

The PRESIDENT, in reply, said it was now over a century since the medical profession had come to the conclusion that vaccination was the best preventive measure against small-pox. One must, however, consider the evidence. In any other matter it would come as a striking phenomenon to learn that a community which had abandoned a preventive measure found greater immunity than a community that had adopted that measure to the fullest extent. What had to be considered was what was going to be done in Ireland, since primary infant vaccination could not be relied upon and compulsory revaccination could not be got. As long as compulsory vaccination was relied upon the greatest lever which could be got for sanitary reform was lost. He held no brief for antivaccinationists, nor did he agree with them as to the alleged failure of vaccination to prevent small-pox.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held in the Metropolitan Hospital on Feb. 5th, Dr. David Ross, a past President, being in the chair.—Mr. Peter Daniel read a paper on Colitis and its Treatment. Colitis, he said, is a mysterious condition much written about and little understood even by men who see cases post mortem. The name even is confusing, as it implies that the condition is confined to the colon, whereas in cases in which the colon has been removed mucus is still passed. A name describing the condition better would be gastro-enterocolitis. For working purposes a simple classification based on the nature of the discharge answers very well: (1) Colitis, with mucus discharge; and (2) colitis, with all other forms of discharge. Infantile diarrhoea, constipation, and other bowel trouble enter strongly into the causation of mucous colitis, but it is difficult as a rule to obtain a history of such conditions. In about 5 per cent. a history of typhoid fever is obtained. The history of spinal trouble, scarlet fever, sore-throat, diphtheria, whooping-cough, and mumps is also associated, but whether they have any bearing other than as causes of lowered resistance is difficult to say. Oral sepsis plays a strong part in the causation, and it is very rare indeed that a patient with mucous colitis gives a "clean history." In cases of primary (mucous) colitis, if the patient suffers from oral or naso-respiratory sepsis, they almost always develop into the ulcerative or necrotic varieties in consequence of swallowing strepto- and staphylococci. A marked condition in mucous colitis is the thinness and apparent elongation of the intestine, which permits looping and folding and is the effect and not the cause of the disease. The symptoms of colitis are so variable that it is impossible to state them in a small space. There are always pain and abdominal discomfort, and distension, coming on towards night. There is aversion to anything tight about the waist. Hot liquids increase the discomfort and probably cause a disinclination for food and nausea. The pain is unstable and hard to locate, and consequently leads frequently to errors of diagnosis. The only way to arrive at a correct diagnosis is by systematic investigation of the colon

by means of the sigmoidoscope and of the fæces by a pathologist. Physical examination of the abdomen alone is usually negative—often nothing being observed, at times tympanites exists, at others the colon may be felt contracted, especially the sigmoid. The temperature is usually normal or subnormal, and the pulse is slightly altered. The treatment may be medical or surgical. Medical consists of dieting, drugs, massage of the abdomen, and generally carried out over long periods; also hydrotherapy and lavage. Suggestion and suitably dealing with the mental state and despondency. The personality of the physician is a strong factor in the treatment. Castor oil relieves pain, as also does cascara combined with agar-agar; calomel in 1/10th gr. to 1/12th gr. doses two or three times a day is also recommended. If injections are required they should consist of olive oil introduced through a large nozzle carefully, the patient being on the left side at first and later in the genu-pectoral position. Surgical treatment mentioned was short circuiting, which has not proved very successful, appendicostomy for continual lavage, and excision of entire colon. Mr. Daniel spoke in favour of appendicostomy, or in the absence of the appendix of cæcostomy, with the object of perfect lavage. Lotions for this purpose might be normal saline, 5 per cent. glucose as the least irritating, but often chemical lotions must be used for the following reasons. In some cases 1½ or even 2 pints of saline is passed through the appendix; it distends the sigmoid but is not expelled spontaneously; sometimes gentle massage over the colon leads to its expulsion, but this sometimes fails. In some cases an astringent may be necessary; of these the mildest are hazeline, zinc sulphate, a few drops of formalin, or the smallest quantity of silver nitrate, either of which leads to spontaneous evacuation. When the solution is retained it leads to a certain amount of diuresis. As a rule the fluid is rapidly absorbed, but at times the absorption is slower. Mr. Daniel stated that on one occasion he passed the sigmoidoscope while the solution was retained and saw the sigmo-rectal sphincter tightly closed, but a very slight pressure from below relaxed it; then after a small enema of half a pint was used the colonic fluid was usually expelled. Some authorities believe that the non-irritating qualities of olive oil suit the mucosa, but he (Mr. Daniel) found that ol. paraffin liq. placed within the bowel after the saline and bowel contents have passed does more good.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in the Medical Institute, Belfast, on Feb. 11th. Mr. R. J. Johnstone opened a discussion on Cæsarean Section by reading a very interesting paper giving an analysis of 28 cases of this operation.—Sir Alexander Dempsey, Dr. John Campbell, Dr. G. A. Hicks, Dr. C. G. Lowry, and Dr. Elizabeth Bell took part in the discussion.

SANATORIA FOR TUBERCULOUS POOR IN SWITZERLAND.—Switzerland has during the last 15 years been making strenuous efforts to provide adequate sanatorium accommodation for the tuberculous poor. In 1913 not less than 14 sanatoria with 1084 beds have been built to accommodate and treat 2722 patients, the average duration of the treatment being 132 days. Exact reports referring to 2377 tuberculous patients have just been published in the *Bulletin Sanitaire Suisse*. Of 788 patients in the first stage 97.5 per cent. and of 555 in the second stage 90.5 per cent. were improved, while of 571 patients in the third stage the percentage of improvement reached the number of only 59.7 per cent. It is to be hoped that from year to year fewer patients who have already reached the third stage will be recommended for admittance. 1357 patients, or 57 per cent., became able to resume their usual occupation; 580 (24.4 per cent.) were slightly, and 399 (16.8 per cent.) greatly, hindered in their working capacity. In 41 cases of those in the second and third stage death occurred. The society "Pro juventute" has collected £10,800 to combat the disease. Forty-four ladies' associations disseminated throughout Switzerland have been actively employed in the same service, and have done excellent work, especially in founding and maintaining a score of dispensaries for the tuberculous. The cantons of Lucerne and Grisons have each collected £12,000 to build a sanatorium of their own.

Reviews and Notices of Books.

Text-book of Embryology: Vol. I., Invertebrata.

By E. W. MACBRIDE, M.A., D.Sc., LL.D., F.R.S., Professor of Zoology at the Imperial College of Science and Technology, South Kensington. Edited by WALTER HEAPE, M.A., F.R.S. London: Macmillan and Co., Limited. 1914. Pp. 692. Price 25s. net.

THIS is the first of three volumes intended to deal with the enormous subject of embryology. A second volume will be devoted to that of the lower vertebrata, and a third to that of mammals. In this handsome, well-printed, and superbly illustrated volume on invertebrate embryology the design is to associate the structural development of embryos with broad generalisations of what is known of their physiology—e.g., the correlation between the function of certain organs of a larva and its habits of life, and between function and habit in the course of development. Some results of experimental embryological research are included, while a novel feature is introduced whereby attention is directed to gaps in our knowledge, which indicate promising fields of research as well as the best means of attacking these problems.

The author regards the science of comparative embryology as a gold mine from which rich rewards have already been reaped, but of which only a small part has as yet been developed, and which promises abundance of gratifying surprises and rewarding returns to the worker of the future; but although the labourers are few, the enormous record of facts already disclosed shows that the harvest truly is plentiful, so plentiful indeed that we sincerely trust the editor's hope of stimulating the interest especially of students of medicine will be realised. We doubt, however, whether the average medical student would at once grasp the full significance of a sentence such as this taken at random: "In the oligochaeta the prototroch is never developed at all; the embryo develops into a blastula, which is converted into a gastrula by invagination or by epibole."

An introductory chapter extending to about 30 pages dealing with growth, maturation, and conjunction of germ cells, chromosomes and their bearing on heredity, the recapitulation theory, embryonic and larval phases of development and factors modifying development, is followed by a short account entitled "Practical Hints" as to methods of procedure applicable to all, or nearly all, classes of embryo. Special methods are described with each phylum. Then follow separate accounts of all phyla of the invertebrates from porifera to protochordata. Each phylum is treated with a wealth of descriptive detail and illustrated by means of admirable figures in the text. The 469 illustrations are drawn from many sources—some are original, many are composite, but all are superb and illuminating.

In his "summary" the author arrives at the far-reaching conclusion that in general the larval phase of development represents a former condition of the adults of the stock to which it belongs. This is in substance the recapitulatory theory, the so-called "law of biogenetics," to which the author adds his testimony, and in so doing gives a rational account of recapitulation. "The individual in its development recapitulates the development of the race." An interesting survey of the Lamarckian doctrine leads the author to discuss the part that

may be played by hormones in relation to the theory of inheritance of acquired characters.

In our opinion this work at once takes a place in the foremost rank of embryological studies. It will prove indispensable to all earnest students of zoology. It is dedicated to the memory of his teacher and friend Adam Sedgwick, and is a worthy tribute of a devoted pupil to a beloved and inspiring master.

Manual of Obstetrics.

By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. With 171 illustrations. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 463. Price 10s. 6d. net.

THIS book is dedicated to the students and graduates of the Jefferson Medical College, and is interesting as embodying the teaching of a well-known American obstetrician. It contains a great deal of useful and accurate information on the subject of obstetrics, but there are a number of statements made and methods of treatment described which are hardly in conformity with the teaching on this subject in this country. We are told, for example, that the "placental sound" is usually produced in the large uterine sinuses where the placenta is attached, and that the funic souffle is a hissing, rapid sound, a little slower than the foetal heart and more rapid than the placental sound. The delivery of the crushed head by cranioclasm would mean to the English student the preliminary breaking up and removal of the vault of the skull, but Professor Davis employs the term for the operation of removal of the head by the craniotomy forceps after perforation without previous crushing. The statement that cephalotripsy may be performed upon the unperforated head is not a usual one in modern text-books. The maternal mortality from placenta prævia is more commonly quoted as 5-10 per cent. in most English text-books, rather than the 10-20 per cent. at which it is estimated by the author.

In the section on eclampsia the sentence that "when the resisting power of the patient is greater Nature may endeavour to save her life by producing convulsions" is an odd one, and we are surprised to find that Sellheim's proposal to amputate the breasts for eclampsia is quoted without any condemnation. The statement that when, after the rupture of an ovarian, tubal, cornual, or broad ligament pregnancy, the ovum, having passed upwards into the abdominal cavity, it may engraft itself upon the surrounding omentum, mesentery, peritoneum, or bowel, and gradually develop a placenta and membranes, is misleading and inaccurate. The description of abdominal pregnancy is poor; no attempt is made to distinguish between primary and secondary abdominal pregnancy; nothing is said about the anterior or posterior subperitoneal varieties, and Taylor's important work on this subject is not even referred to. It is difficult to believe that the author would really practise vaginal hysterectomy in the event of a retroverted uterus remaining in the hollow of the sacrum and infection developing after the death of the embryo; why not remove the cause in the shape of the dead and no doubt putrefying embryo?

The legends of some of the figures show a want of care. Thus, "The Foetal Heart Sounds" is the title given to a picture representing auscultation of the pregnant uterus; "The external conjugate by

external pelvimetry," Farabœuf for Farabeuf, and such an expression as "The Infection of the Baccillus Coli Communis," are slips such as one does not expect to find in a book of this kind.

Notwithstanding its defects, however, the book is worth reading as exemplifying the teaching and practice of an American obstetrician.

Butterworth's Workmen's Compensation Cases.

Vol. VII. (New Series). Edited by His Honour Judge RUEGG, K.C., and DOUGLAS KNOCKER, Barrister-at-Law, M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H., assisted by EDGAR T. DALE, Barrister-at-Law. London: Butterworth and Co. 1914. Pp. lxxix. + 1011 + 28. Price 12s. 6d. net.

THIS annual volume contains reports of all cases decided from October, 1913, to October, 1914, under the Workmen's Compensation Acts in the House of Lords and Court of Appeal, England, and selected cases from the Irish Court of Appeal and Scotch Court of Session. It constitutes a useful work of reference for the library of a lawyer whose practice is to any considerable extent connected with workmen's compensation, and as the subject so closely concerns medical men it has also considerable interest for them.

Cases of medical interest in which there were appeals during the 12 months dealt with, include *Walsh v. Locke and Co. (Newland), Limited (England)*, in which the old topic of the refusal of a working man to undergo a simple operation in order to regain the capacity to work was under review. In this instance the refusal was that of a miner to have a stiff finger removed, so as to enable him to handle a pick, without a "guarantee of success." The county court judge found the refusal to be reasonable, but the Court of Appeal held that there was no evidence to support that finding. *Jones v. Davies, Limited (England)*, was an appeal concerned with the liability of the workman, unsuccessful in an application to have compensation continued, to pay the fee of a medical man who had examined him for the employers in order to qualify to give evidence. The question was whether the fee was recoverable when the examination had taken place before proceedings were commenced. It was held to be sufficient that a dispute had arisen between the parties. In *Lewis v. Port of London Authority (London)* a good deal of medical evidence, some of it conflicting, had been given, and in the judgment of Lord Justice Pickford the position and the functions of the medical referee sitting as an assessor were discussed and defined, comparison being made with the practice of the Admiralty Court and the amount of weight there given to the advice of the nautical assessors. "He is there," said his lordship, "to give his advice, in the one case upon nautical matters and in the other case upon medical matters. He is not there to give a judgment or to find the facts, and his advice is no part of the judgment, and may be disregarded by the judge, as it has been in the Admiralty Court on not very infrequent occasions."

Naturally, in a large number of cases there is record of accidents involving a considerable amount of medical testimony, although in some of them the consideration of this may not have formed part of the duties of the Court of Appeal. Perhaps the most interesting of these are concerned with the question whether incapacity is due to "an accident" or to "disease," and, again, the variety

seems almost infinite of the ways in which "accidents" may take place, leaving as a matter of dispute whether they arose out of and in the course of the workman's employment. In both these classes of dispute, we need hardly say, medical evidence is very frequently the most conclusive obtainable.

Dairy Chemistry.

By HENRY DROOP RICHMOND, F.I.C. Second edition, revised. With numerous tables and 49 illustrations. London: Charles Griffin and Co., Limited. 1914. Pp. 434. Price 15s. net.

Mr. Richmond's book has always been accepted as a standard work on the chemistry of dairy products, although no new edition has been forthcoming until now, while the first edition was published in 1899. For some years past, however, the author has been seriously handicapped by ill-health. We are glad to learn that this unfortunate reason need no longer deprive all those closely connected with the examination of milk products of the advantage of gaining his more recent experiences on the subject.

In his preface he admits that by lapse of time certain portions of the text had become obsolete, which has necessitated their rejection in the present edition and their replacement by matter based on the latest investigations. We observe that amongst other new matter care has been taken to include the new and improved methods of analysis which have been devised within recent years for the examination of milk and milk products. He has also reserved space for an account of the enzymes in milk and their detection, which, in view of the importance attached to these entities and of their presence indicating raw milk, claim special attention.

The book is a thoroughly practical one, and this revised edition will be heartily welcomed by all those engaged in the control of milk products and in the business of the dairy and milk product factory.

Mutual Aid.

By P. KROPOTKIN. London: William Heinemann. 1915. Pp. 240. Popular edition, price 1s. net.

THIS admirable book was first published in 1902, and is now issued in a popular form on account of its subject matter being a sound reply to the argument of the Bernhardt school of thinkers, who, putting a mistaken construction upon Darwin's principle of the "struggle for existence," maintain that the horrors of the present war are a necessary corollary of that principle. Prince Kropotkin puts forward the thesis—and maintains it by a wealth of facts collected from animal life, savage society, barbarian tribal laws, mediæval society, and modern life—that biological and social progress should be interpreted "not in terms of overbearing brute force and cunning but in terms of mutual coöperation." The result is a work of singular interest, exhibiting very wide reading, written in a simple and clear style, and naturally coloured all through with the candid and transparent personality of the writer.

Few persons besides those who have studied the subject as specialists are aware how deeply the principle of mutual aid sank into, or we may say was the essence of, the life of the mediæval city, and Prince Kropotkin's informing chapters on this subject should be read by everyone. The mediæval guild was the evolutionary product of the tribal "gens" and the village community. It was an

association of men and women working together for the common good of the members, and in this ideal they were at one, as the very name "universitas," the technical and legal word for a guild, shows. There is a remarkable passage in the Psalms which demonstrates how deeply the notion of the connexion between a city and mutual interests had sunk into the minds of men. In Psalm cxxii. 3 the Prayer-book version has, "Jerusalem is built as a city that is at unity in itself." The Vulgate version (the number there is cxxi.) reads, "Civitas cujus participatio ejus in idipsum." The Septuagint reads, πόλις ἥς ἡ μετοχή αὐτῆς ἐπίσταυτό, "a city whose fellowship (sharing) is complete." But the original Hebrew expression means "a city that is well compact together," in reference, probably, to the protecting walls and towers, but without the idea of community or fellowship. After his review of the mediæval city Prince Kropotkin points out how the State tried again and again in various countries to be the only bond of union, and shows how this attempted autocracy broke down owing to the reappearance of the mutual aid tendency. Mutual aid, though in Prince Kropotkin's opinion somewhat fallen from its high estate by being confused with or contaminated by "charity," is to-day really widespread both in public and private life.

The appearance of this work is most opportune at a time when mutual aid is more needed than ever, and as its price puts it within the reach of even a very modest purse, we hope that it will be widely read and seriously thought over.

LIBRARY TABLE.

A Synopsis of the British Pharmacopœia, 1914, and of the Poison Laws of Great Britain and Ireland. By H. WIPPELL GADD, F.C.S. Eighth edition. London: Baillière, Tindall, and Cox. 1915. Pp. 196. Price 1s. net.—The modesty of the preface of this unpretentious little book almost disarms criticism. After paying compliments to the new Pharmacopœia and conceding that for many purposes the volume itself must be consulted, the author proposes his book as a summary for students and as a pocket reminder for medical men and pharmacists. Within a limited range the book will be helpful to those who wish to read while running, but it will often provoke a desire for more detailed information or for further elucidation of the text. The lack of guidance will be felt most acutely by those who refer to the section on Tests for Chemicals, which gives no information about the composition of the tests employed; we meet with T.S. ferric chloride and with T.S. mercuric chloride, but fail to find any indication of the strengths of these test solutions. On the other hand, the employment of heavy type for the footnotes from the Pharmacopœia which call attention to alterations in strength of official preparations will be a great boon to the young man in a hurry. The synopsis of the laws affecting the sale of poisons is clear and well arranged.

The Mind at Work: A Handbook of Applied Psychology. Edited by GEOFFREY RHODES, with contributions by CHARLES BUTTAR, M.D., E. J. FOLEY, and Professor L. L. BERNARD, Ph.D. London: Thomas Murby and Co. 1914. Pp. 235. Price 3s. 6d. net.—In this little compendium are two chapters by Dr. Buttar on nervous anatomy and physiology, which exigencies of space, no doubt, have rendered almost too concise; nine on elementary psychology, dealt with mainly, or at least to a

considerable extent, from the physiological side, by Mr. Foley; two by the editor (containing much by way of quotation) on the subconscious mind, dreams, suggestion, and hypnotism; and one by Professor Bernard on the applications of psychology to social problems. We feel that the authors would have done themselves and their subject greater justice had the purview of the book been less comprehensive or its individual sections more detailed. It suffers, as a whole, from the brevity with which its subjects are handled. In a short glossary of psychological terms at the end the word psychosis is used in a sense different from that in which it is ordinarily used by the medical profession. Organic sensations are said to be "those that arise from the body itself, as aches and pains," a definition which scarcely defines.

A Manual of Normal Histology and Organography. By CHARLES HILL, Ph.D., M.D., Professor of Histology and Embryology, Chicago Veterinary College, &c. Third edition. London and Philadelphia: W. B. Saunders Company. 1914. Pp. 483. Price 10s. 6d. net.—We have not much to add to our notices of the two previous editions of this book. Doubtless its author intends it primarily for veterinary students, and to this is to be attributed the attention given here and in former editions to the subject of the teeth, as well as the new sections which appear now for the first time on the stomach in ruminants and on the hoof of the horse—this last a very interesting feature, though lying a little outside the needs of the medical student. Other novelties in this edition are said in the preface to lie in the "topics dealing with heredity and sex, glands, blood and lymph." The index gives singularly little help in identifying the sections devoted to these subjects, "heredity" being assigned to p. 26, on which the word does not even occur, while "lymph" is not indexed at all apart from compounds such as "lymph-gland" and so forth. A very simple division of white corpuscles is adopted, without any of the refinements of classification sometimes practised, but we do not mention this as a fault. The best feature of the book is its illustration.

Know Your Own Mind: A Little Book of Practical Psychology. By WILLIAM GLOVER. Cambridge: University Press. 1914. Pp. 204.—Mr. Glover has written a useful little book of everyday psychology, intended to popularise the subject. With this end the matter has been dealt with on elementary lines and in simple phraseology, while numerous practical illustrations and illustrative instances ensure the attractiveness and readableness of the work. It does not pretend to cover the ground completely or equally, but for the immediate purpose it serves very well, presenting that combination of technicality and lucidity which is a sufficient index of the author's own grasp of his subject. The beginnings of mind are discussed, and how ideas get into the mind. Mental machinery is sketched, apperception and what is implied thereby is rather more fully handled, and there are readable chapters on observation, judging, attention, and interest. The author's point of view is frankly Herbartian, but the applications of the teaching are essentially modern and up to date. To the individual of average intelligence and education who wishes to know more of "how it works" this fresh and well-written précis of the mind's activities and diversities may be cordially recommended.

JOURNALS AND MAGAZINES.

Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. VIII., No. 30. January, 1915. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, and Melbourne: Humphrey Milford. Subscription price 25s. per annum; single numbers 8s. 6d. net each.—The contents of this number comprise: 1. Notes of Further Observations upon Dyspnoea and its Relation to Blood Reaction, by Thomas Lewis and Joseph Barcroft. The influence of reduced alkalinity of the blood or acidosis in the production of dyspnoic states is further examined by means of a study of the percentage saturation of the blood with oxygen when exposed at 37° C. to 17 mm. pressure of that gas. From a study of a series of cases of heart disease the authors conclude that from the point of view of blood reaction and dyspnoea cases of heart disease may be divided into two classes. The first comprises relatively simple and uncomplicated cases in which, though cardiac failure may be present, recovery generally occurs. In this group no acidosis is found. The other group comprises many of the cases of heart failure in middle-aged or elderly subjects, in which reduced alkalinity in the blood is frequently present. It appears, however, that the acidosis is not to be attributed to heart failure only, and that there may be a renal factor in its production. Some observations are recorded upon cases of mechanical dyspnoea, which seem to indicate that acidosis may be a factor even in such cases. 2. Observations on Thomsen's Disease, by W. Johnson and Geoffrey Marshall. In a family of eight children, four were found to be affected with Thomsen's disease, and three of these have been carefully investigated. As a result of their observations, Dr. Johnson and Dr. Marshall suggest that in this disease there is an increased resistance to the passage of nervous impulses, and they believe this resistance to be in the synapses. They found that strychnine has a marked effect in lessening the myotonic character of the contractions. They believe that histological changes in the muscle are secondary effects—namely, a form of compensatory hypertrophy. Their observations lead them to suggest the use of strychnine in the treatment of this disease. 3. The Rationale or Modus Operandi of the Wassermann Reaction and Abderhalden's Test, by J. E. R. McDonagh. From a study of the physico-chemical properties of the individual factors in the Wassermann reaction and in Abderhalden's pregnancy test, Mr. McDonagh offers the suggestion that neither of these reactions is specific, but that they are group reactions which depend on certain physical conditions of the protein molecules. He believes that in the Wassermann reaction we are dealing with a pure precipitation, and in Abderhalden's test with precipitation and hydrolysis. 4. The Metabolism of Nitrogen in Dermatoses: General Review by H. L. Tidy. From a study of the literature the following general conclusions among others are arrived at: changes in the nitrogenous excretion in various dermatoses are the result of the condition of the skin, and are not connected with the cause of the disease. Retention of nitrogen is apparent and not real, and is accounted for by the abnormal excretion of nitrogen by the skin. It is suggested that a low protein diet is worthy of trial in forms of dermatoses where the nitrogenous excretion is disturbed. 5. The Treatment of Congenital Syphilis, by Leonard Findlay and Madge E. Robertson. The results of treatment of congenital syphilis by means of neosalvarsan are analysed, and it is stated that this drug is superior to mercury in alleviating many of the manifestations of the disease. It is advised that the drug should be given intravenously, preferably into the veins of the scalp.

Dental Record.—To the February issue of this journal Mr. C. A. Achner contributes a paper on the light wire splint for fractures of the mandible. The best method of adapting the splint to various types of fracture is shown by a series of stereoscopic photographs. The apparatus was reviewed recently in our columns.—Mr. J. F. Colyer contributes a further instalment of his paper on injuries of the jaws and teeth in animals. Injuries to the tusks of elephants are described, as well as injuries to the teeth of rodents and carnivora.—Mr. Norman G. Bennett has an article on the relationship between the size of the teeth and the size of the jaws. He considers there is reason to uphold the three views that have been put forward to account for the great variation that exists. These views are (1) progressive inherited

changes in the jaws, proceeding more quickly than in the teeth; (2) inheritance of the jaws from one parent and the teeth from the other; and (3) defective growth of the jaw as the result of disuse or environment subsequent to calcification of the teeth germs.

British Dental Journal.—The issue of this journal for February contains a paper by Dr. E. C. Kirk on the Chemistry and Physiology of the Saliva. The author gives a complete résumé of the work on the physiology of saliva which has been carried out in America since 1909. He lays great stress on the composition of the saliva, and considers it a most important index of metabolism. There is a reprint of an article by Dr. C. H. Mayo on Mouth Infection as a Source of Systemic Disease, and a useful paper by Dr. Gilmer and Dr. Moody on the Bacteriology of Alveolar Abscess.

THE ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD FOR 1913-14.¹

I.

THE report of Dr. Newsholme, medical officer of the Local Government Board, recently issued as a supplement to the Board's general report for 1913-14, has already been noticed in THE LANCET in general terms. But many points therein merit special mention. Although the several annual and special reports of the Medical Department are primarily designed for the information and guidance of health officers, they nevertheless abound with records of scientific investigations respecting the nature and prevalence of disease which are of profound interest to every student and practitioner of medicine. The arrangement of matter in the present report corresponds to that in its predecessors—the administrative considerations derived from the experience of the year being set out in relation to the course of events indicated by our national records of sickness and mortality. We propose to comment mainly upon topics which are regarded by Dr. Newsholme as exceptionally important, or which have been only sparingly discussed elsewhere.

Waste of Infant and Child Life.

In the year 1913 English infant mortality was at the rate of 110 per 1000 births, which is somewhat above the rate of 1912, but as compared with previous years the curve is considered satisfactory. Equally satisfactory, likewise, is the aggregate decline of mortality at ages up to five years. From a table based on the experience of 1911 it appears that out of a given total of births the largest number survive to the end of the fifth year in the rural districts, the smallest number in the county boroughs. Fully 88 per cent. survive to that age in the southern division and 83 per cent. in the midland, whilst only 81 per cent. survive in the north of England and in Wales. A statement is added of the relative magnitude of the chief causes of mortality in infancy and early childhood, which throws light on the possibilities of further reducing the waste of child life. From this we gather that over one-fifth of the deaths in infancy, and nearly one-third of the deaths under 5 years, are due to infective diseases, including tuberculosis. Pneumonia and bronchitis, which should also be classed as infective, account for about one-fifth of the deaths under 1 and under 5 years respectively. Solution of the problem of protecting child life and securing correlative improvement in the health of survivors beyond childhood evidently consists largely in the prevention of infections. In these and some other conditions the previous nutrition of the infant is of chief importance, and the factor which determines the result of infection, when acquired, is not infrequently rickets. Study of the now available returns of mortality in early infancy leads to the conclusion that most of the deaths under the age of four weeks are due to causes originating before birth. Comparing the experience of the year 1912 with that of 1905, it appears that in the first month of life the death-rate has fallen by not more than 8 per cent.; in the next two months it has fallen by 29 per cent.; in the second three months by 40 per cent., and in the last half of the period of infancy by 35 per cent. The relatively insignificant decline of mortality

in the first month of life probably indicates that congenital disease and enfeeblement are largely responsible for fatality in this period.

Government Grants in Aid of Preventive Schemes.

At the instigation of their medical staff the Local Government Board have recently devoted serious attention to questions of infant life protection, the well-directed efforts often made by municipal and voluntary agencies for dealing with the matter having been duly appreciated. By the representations of eminent members of the public health service as well as by their own departmental experience, the Board are convinced of the necessity for more extensive and systematic measures than those that have hitherto been practicable. Recognising the inability of many local authorities to bear the entire cost of adequate schemes for the promotion of maternity and child welfare, they are disposed to intervene with direct financial assistance. Accordingly the Board have applied for Treasury sanction for the apportionment of grants in respect of work of this character initiated under official sanction by municipalities or by voluntary associations. They further express their readiness to afford expert advice and assistance to sanitary authorities contemplating the initiation of schemes or the extension of those already in operation. The action of the central authority in thus attempting to provide for one of the most pressing needs of local sanitary reform is a very valuable one.

Infant Welfare Work.

The necessity of safeguarding child life at its origin, upon which depend the health and vigour of survivors at adult ages, appeals with tenfold earnestness in time of war. In view of the remarkable activity recently displayed by local authorities and voluntary agencies for the promotion of maternity and child welfare work, the medical officer devotes considerable space to the consideration of the subject. The development of a comprehensive scheme for this purpose has already been announced in two special reports by Dr. Newsholme² dealing exhaustively with the problem of English mortality in early life. From these documents a close interrelation became apparent at the outset between defective sanitation, poverty, and intemperance on the one hand and excessive infant fatality on the other. Account was also given of efforts already made in this country for reducing the waste of infant life. In his report for 1905-6 Sir William H. Power, at that time medical officer to the Board, distributed to the local medical officers of health improved and considerably extended forms of infant mortality tables for use in their periodical reports, and invited their coöperation in the hope of ensuring success for the new departure. It is gratifying to learn that the response to this appeal has been eminently satisfactory, and has resulted in materially stimulating official study of this previously neglected subject. The statistics compiled since 1905 from the amended tables then issued constitute the basis of comparison in Dr. Newsholme's two recent reports. Appreciative reference is made in the present volume to important early efforts for the preservation of infants in certain towns of the north. As early as 1899 Salford commenced a successful system of voluntary notification of births by midwives. The action of Huddersfield in 1906 in securing the prompt notification of births is another significant indication of the strengthening of public opinion in favour of this measure, and doubtless helped to facilitate the passing of the Notification of Births Act of 1907. By the middle of 1914 this Act had been adopted by most of the principal authorities, and its extension is still rapidly proceeding. Consequent on this extension the number of health visitors has materially increased. In addition to the numerous voluntary workers more than 600 health visitors are already employed by sanitary authorities for the care of infants. This implies that there exists a paid health visitor for every 6000 children under school age in England and Wales. Considerable saving of infant life is known to have resulted from the adoption of this Act, especially in some of the northern industrial centres. The expert advice given by health visitors, whilst primarily beneficial to the infants, is frequently found effectual in securing improved health conditions in the homes visited. In Manchester and Liverpool "infant consultations" are conducted under voluntary arrangement, and in Sheffield periodical consultations are

¹ London: Wyman and Sons. Price 1s. 11d.

² THE LANCET, Jan. 10th, 1914, p. 129.

held, the medical expenses being defrayed by the town council. Under the direction of the Birmingham Health Department infant consultations are held at stated times, and at Bradford there is a municipal infant consultation centre and milk depôt at which three whole-time medical officers and 13 nurses are employed. A new central infant welfare centre is being provided in this town to contain 20 beds for the accommodation of non-infectious patients under school age.

Antenatal Mortality.

Under the Births Notification Act, which provides for the reporting of live births as well as of dead births occurring later than the twenty-eighth week of pregnancy, some estimate is possible of the loss of life preceding birth, in addition to the large aggregate of infant mortality after birth, which is due to conditions arising in the antenatal period. A table in the text indicates the existence of local differences in the ratio of dead births to registered live births, from which it seems that a variable proportion of dead births remain unnotified. Dr. Amand Routh is quoted as estimating that abortions at an early stage of pregnancy are probably four times as numerous as the dead births, which may be taken to average 3 per cent. of the children born alive. This would imply a total antenatal mortality of 150 per 1000 births, which is higher than the average mortality in the first year after birth. The significant recent fall in the English birth-rate has recently been referred to by Dr. T. H. C. Stevenson in his remarks on fertility in relation to social status.³ Evidence was adduced in support of the view that outside the range of extreme poverty the relation frequently observed between high birth-rates and high death-rates is by no means constant or unavoidable. Among agricultural labourers, for example, who constitute nearly 5 per cent. of the entire adult population, the families are of fully average size. Yet their infant mortality is below the general rate by 22 per cent.

Antenatal Preventive Work.

As the result of inquiry the Board are assured that a considerable amount of antenatal health work is locally in progress, especially in connexion with maternity departments and infant consultation centres. In the maternity departments of several metropolitan hospitals provisions exist for the home visitation of expectant mothers, who are attended at intervals both before and after confinement. At St. Thomas's Hospital all women applying for maternity aid are seen by a medical officer, who decides whether a case shall receive hospital or home treatment at her confinement. Home visits are undertaken by voluntary agencies; at these visits, which are highly appreciated, efforts are made to induce the expectant mother to provide suitably for the infant's arrival. The confinements at home are attended from the hospital, the supervision of mother and infant being continued for at least a year. Many of the children are kept under observation up to school age. At Leeds the maternity hospital furnishes a list of women applying for such aid, and these are visited by municipal health visitors at intervals up to their confinement, and in most cases subsequently also. The Leeds Babies Welcome Association have several centres at which expectant mothers are received, and midwives are asked to refer expectant mothers to these centres. Similar arrangements obtain at Newcastle-on-Tyne, Warrington, and St. Helens.

Organisation of Maternity Centres.

Under this heading the medical officer gives helpful suggestions concerning the establishment and management of maternity centres, in respect of which the Board are desirous to afford financial assistance. These institutions are believed to constitute the best practicable means of providing medical care for expectant mothers, as well as for mothers during confinement, and for these and their offspring until the latter arrive at school age. It will be remembered that, in addition to these centres, the salaries of health visitors and officers of infant consultations are among the subjects for Parliamentary grants. In order that the necessary information may be obtained regarding expectant mothers for whom medical assistance is required, the close

coöperation of the local midwives is indispensable. In all cases it is essential to aim at securing adequate medical aid and guidance for both mother and child, from the birth of the latter onwards, both by means of home visitation and by attendance at a maternity centre for medical advice and treatment if necessary. The overlapping of duties with those of other voluntary agencies must of course be avoided.

Mortality in Connexion with Maternity.

The national death returns furnish conclusive evidence of the need of additional maternity work, whether the figures for infantile or for maternal mortality are compared: Nearly all the deaths in the first week, and most of those in the first month of life, are due to natal or antenatal causes. Of the total deaths in the first year about one-fifth occur in the first week, and one-third in the first month after birth. That this sacrifice of life is largely avoidable is proved by the great variations in incidence shown by the tables in various parts of the country. With respect to adult loss of life in connexion with maternity we learn that the deaths assigned to pregnancy and childbirth in 1912 amounted to 3473, or 3.98 per 1000 births, of which number 1216 were caused by puerperal septicæmia. Of late years there has been a reduction in the death-toll from these diseases, but it remains an unsatisfactory fact that even so recently as 1912 septic conditions in childbirth accounted for the loss of 1216 English mothers. Moreover, it is common knowledge that a vast amount of suffering of indefinite yet disabling character is caused by unskilled attendance in labour, and by failure to recognise septic and other conditions complicating pregnancy and childbirth.

(To be concluded.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on Feb. 11th, Sir W. WATSON CHEYNE, the President, being in the chair.

It was resolved to issue Diplomas of Membership to 112 successful candidates.

It was also resolved to issue jointly with the Royal College of Physicians Diplomas in Public Health to six successful candidates.

In accordance with the recommendations of the Anatomical Committee, which was appointed last December to consider what steps should be taken to increase the present inadequate supply of subjects for dissection, it was resolved to write to the Secretary of State for the Home Department pointing out the importance of the matter and expressing the hope that steps might be taken to remedy the deficiency.

Mr. John Murray, surgeon to and lecturer on surgery at Middlesex Hospital, was elected a member of the Court of Examiners.

Mr. Charles Alfred Ballance was elected from the members of the Court of Examiners a member of the Board of Examiners in Dental Surgery.

A letter was read from Mr. T. Egerton Bryant thanking the Council for their resolution of sympathy on the death of his father, Mr. Thomas Bryant.

The PRESIDENT reported that in pursuance of the provisions of the Bradshaw Bequest he had chosen Sir Anthony A. Bowlby as Bradshaw Lecturer for the ensuing year.

DUBLIN LECTURESHIP IN OPHTHALMOLOGY.—

The late Robert John Montgomery, M.A., M.B. Dub., F.R.C.S. Irel., bequeathed to the Board of Trinity College and to the President, Vice-president, and Council of the Royal College of Surgeons in Ireland a sum of money for the establishment of a lectureship in ophthalmology in Dublin. He desired that the lectureship should be known as the Mary Louisa Prentice Montgomery Lectureship in Ophthalmology, and that the appointment to it should rest each alternate five years with the Board of Trinity College and with the president, vice-president, and Council of the Royal College of Surgeons in Ireland. Joint regulations have been drawn up by these two bodies and the first election to the position will take place at the beginning of next summer session. The salary amounts to about £160 per annum.

³ Registrar-General's Annual Report for 1912, p. 22. THE LANCET, Sept. 12th, 1914, p. 707

THE LANCET.

LONDON: SATURDAY, FEBRUARY 20, 1915.

Antityphoid Inoculation in the Army.

THE reopening of Parliament has enabled responsible Ministers to indicate the general attitude at present adopted with regard to antityphoid inoculation in the army, and from their answers to questions asked in the House it is easy to realise the trend of thought for the future. For the present Lord KITCHENER commends to the careful attention of every soldier a statement to which he attaches great importance in the interests of the health of the army. The probable development in the future may be gathered from the remark of Mr. TENNANT, Under Secretary of State for War, that evidence is accumulating in favour of making inoculation compulsory, and it is clearly indicated that the House of Commons will be afforded an opportunity of expressing an opinion on this matter. It is perhaps unfortunate that discussion should be deemed necessary, and still more unfortunate that the term "compulsory" must be employed. Discussion is not likely to convince those who approach the debate with a mental kink against what has been termed the arrogance of science; still the outcome of debate must be a foregone conclusion since the evidence in favour of inoculation is overwhelming. Public discussion is not likely to serve any useful purpose, for remarks made in the course of criticism, will assuredly be seized upon, separated from their context, and reproduced in distorted form by those who are actuated by objects far removed from the immediate subject—namely, the advisability of compulsory antityphoid inoculation in the army as a prophylactic measure. It is often assumed by honest critics that some occurrence of typhoid amongst those protected by inoculation is sufficient to discredit this form of treatment. Further study of the great diminution in frequency, severity, and mortality should convince those who are open to conviction. Omnipotence has never been claimed by any scientific man for any form of treatment. It would be equally unsound to question the general advisability of operations for appendicitis or of the adoption of Listerian methods because certain fatalities have occurred when treatment has been unduly delayed or when there has been some lack of technical precautions.

Under ordinary circumstances the mere suggestion of "compulsion" is sufficient to rouse a storm of invective and antagonism. The average man, accustomed to believe that he is a free agent, living

in a free country, resents any interference with this belief, and yet, on consideration, he has to admit that the conditions of civilised life leave very little room for the exercise of irresponsible freedom. In times of peace any threatened interference with liberty of action affords a healthy stimulus for discussion and fosters party feeling. The language of the battlefield is used with complacency, the nation is said to be divided into hostile camps, and the gains and losses of the parties are recorded daily. With the declaration of war the national spirit asserted itself, and opponents stood shoulder to shoulder to meet the common foe, and all the minor interests of the past were overshadowed by the urgent needs of the present. Criticism was respectfully hushed and all combined to support the authority of the executive officers of the Crown. Circumstances now are affording an opportunity for the troublesome activities of a minority opposed to scientific progress. The comparative pause which has accompanied the deadlock in the trenches has naturally been utilised by the authorities in fitting the new army for active service and in endeavouring to strengthen the powers of resistance of those already engaged. Those who were silent in the early realisation of a common danger have recovered the desire to attack measures advocated by those in authority. With vague ideas that in some way antityphoid inoculation is connected with vivisection a veritable crusade of an unworthy character has been started, and it is urged that inoculation and vaccination have impeded the course of recruiting. Last week we published a leaflet to the troops, which Lord KITCHENER had commended to the careful attention of every soldier, and consideration of the eminence of those who signed the statement should be sufficient evidence of its value. Each individual soldier is told that, "For your own sake, for your country's sake, and for the sake of the Army you should not fail to avail yourself of the protection secured by this simple, safe, and well-tested measure." This is the language of persuasion and of reason, expressed in very temperate terms, and it assumes that good sense will prevail over prejudice, and that it may not be necessary to resort to compulsion. Had an additional argument been required, it might have been pointed out that the force of example was not wanting; that while men of all classes and ages have been enlisting, or undertaking some form of personal sacrifice by which they hope to be able to feel that they have contributed their share in safeguarding the nation, officers and medical men have, in addition, been inoculated to minimise the risks of exposure to infection.

The leaflet makes the personal appeal to the individual for his "own sake," but it would be well for him to realise that the reference to the country and the army is no mere rhetorical flourish. The care of each individual in the field is of immense importance, since sickness removes not

only one and the many who have to care for him, but it also serves to demoralise others, who may doubt the efficacy of the sanitary measures adopted to check the spread of an epidemic. Doubtless it is hoped that the leaflet will facilitate future measures by preparing the mind of the individual soldier for a general order. It will serve a good purpose if it shakes the belief in the truth of the "literature" circulated by opponents of vivisection, against whom, as indicated in the House of Commons, action conceivably might be taken for an attempt to impede recruiting and to stir up discontent amongst those actually on service in the field. So far as recruits are concerned, the term "compulsory" is not strictly applicable. Inoculation might be made one of the conditions of service, and these conditions, like those of height, weight, or chest measurement, can be altered at will. It might be inserted among the requirements for all likely to go on foreign service, since it is amongst those who serve at the front the risk of an epidemic is greatest, and that its occurrence tends to dislocate the most carefully prepared organisations. The difficulty that has to be faced is the enforcement of a new regulation which would affect those already in the field. So long as there is any room for the exercise of individual option, so that a single "conscientious objector" may by himself serve as a source of danger to the whole expedition, all efforts to influence by the force of reason are likely to be nugatory. In the light of our experience in South Africa, and in view of the evidence collected in America, it is sincerely to be hoped that, if Lord KITCHENER desires, Parliament will strengthen his hands in sanctioning any new regulation which will give effect to the representations he has received from his scientific advisers.

Gunshot Wounds of the Head.

MODERN small-arm projectiles are in some respects less injurious than those which were used 50 years ago, for if a modern bullet passes through a limb without encountering a bone, or a large vessel, or an important nerve, little harm may result, and recovery may be complete in a short space of time. With wounds of the skull, however, it is far otherwise. The modern bullet, though much smaller than its predecessors, travels with a velocity far beyond anything known until recent years, and when it reaches the skull it produces results which surprise us by their severity. Even now, though several wars have been fought with these modern weapons—and in the present war we have had some six months' experience of the effects of rifle bullets—yet it cannot be said with certainty that we are fully acquainted either with the mechanism of the bullets' action or with the most suitable method of treatment.

It was practically useful and scientifically interesting that the Medical Society of London held last week a debate on the subject of gunshot

wounds of the head. As to the mechanism of the action of the bullet we had the results given us of some interesting experiments which Sir VICTOR HORSLEY had performed, a full description of which will be found in our issue this week. He chose a modelling clay as not very dissimilar in consistence from the tissues under consideration, and into a mass of this he fired bullets resembling those used in modern war, and he obtained some surprising results. The most striking point brought out by his researches was the fact that much of the harm done to the tissues by the bullet is due to its rotation rather than to its onward movement. Further, he attributes the varying effects of different bullets solely to the difference in sectional area, and not at all to the shape. The so-called explosive effect which is so striking a result of the modern bullet has been shown to be due to the fact that the brain has somewhat of a fluid nature, containing indeed a large proportion of liquid in its composition. Therefore, when the entrance of a bullet into the skull suddenly increases the intracranial pressure, this increase of pressure is transmitted with hardly any diminution in all directions, and the explosive action is brought about. Though much of all this is theoretical, the practical point as to what is the best treatment of a gunshot wound of the brain ought to be decided upon an understanding of the mechanical factors.

Treatment of bullet wounds of the head is at present regulated upon general lines, with due regard especially in the matter of prognosis to the special conditions. Sepsis in any part of the body is serious, but nowhere is it more serious than in the cavity of the skull, and it was generally agreed by speakers at the discussion at the Medical Society that a thorough attempt should be made at the earliest possible moment to cleanse the track of the bullet and to remove fragments of bone. What antiseptics are to be used must depend on the surgeon, but the cleansing must be thorough, and if this be done the chance of recovery is greatly increased. The other main harmful factor in the production of symptoms from cranial injury is the rise of intracranial pressure; this comes partly from the effusion of blood and partly from exudation, and when this rise of pressure is excessive it is essential that decompression should be practised at the earliest possible moment. Sometimes it is sufficient to clear the openings in the skull caused by the bullet; sometimes trephining must be done. An important suggestion in the treatment was brought forward by Mr. W. H. H. JESSOP at the debate at the Medical Society, when he pointed out that in cases of fracture of the vault by bullet or shrapnel there was an early papilloedema, pointing to increased pressure, but that this papilloedema rapidly disappeared when decompression had been practised. In such cases, even when the cedema is well marked, no symptoms may be present, a point of the first

practical importance. We trust that the whole subject will, at some short interval, be again discussed by representative surgeons in order that this kind of practical suggestion may be widely forthcoming from different experts, while the sad circumstances in which we live render material for debate available.

Annotations.

"Ne quid nimis."

THE FOOD-SUPPLY OF THE GERMAN PEOPLE.

WE publish this week a detailed review of Dr. Paul Eltzbacher's remarkable pamphlet on the food-supply of the German people. This work is a complete and authoritative exposition of the situation which he and his collaborators foresaw might arise when the British Fleet began to exercise serious pressure upon the German resources. The figures are as striking as the arguments, and sufficiently show how enormous the task of the Allies has been.

THE BACTERIOLOGY OF CONDENSED MILK AND MILK POWDERS.

A REPORT concerning the effects of certain condensing and drying processes used in the preservation of milk upon its bacterial contents was issued last week by the Local Government Board. The investigation was undertaken by Dr. Sheridan Delépine. The three methods of preservation examined were: (1) the manufacture of sweetened condensed milk; (2) the drying of milk over heated revolving cylinders; and (3) the drying of milk by spraying it into a current of hot air. The experiments now reported were made with the view of ascertaining whether tuberculous cows' milk was still capable of conveying tuberculosis after being treated according to methods 1 and 2. Further experiments have been made on the general effects upon the bacterial contents of milk following the use of methods 2 and 3, but the results await further inquiries. In feeding experiments Dr. Delépine reports the superiority of dry milk over fresh milk, and points out the advantages of dry milk from the hygienic as well as from the commercial point of view. It is therefore regrettable, he adds, that the process of drying should not always yield an article entirely free from pathogenic bacteria. He concludes that if clean milk obtained from healthy cows were dried in a factory where suitable precautions were taken to prevent recontamination, dry milk almost free from bacteria could be produced. No experiments appear to have been made on the question of how long in a practically dry powder the organisms remain virile. The activity of bacteria is necessarily diminished in the absence of moisture, and milk powders do not, as a rule, contain more than 3 or at the most 5 per cent. of moisture which can be expelled by heat. In summarising his work Dr. Delépine states that the total number of bacteria present in mixed cows' milk has been found to be considerably reduced by treatment according to each of the three methods investigated. The reduction was greatest in the case of sweetened condensed milk, least in the powder obtained by spraying milk into hot air,

while milk dried over hot cylinders occupied an intermediate position. In each of the three methods of treatment there was a stage at which the reduction in the total number of bacteria was much greater than that observed in the finished article ready for sale. This increase is attributed to recontamination. The interesting observation is made that the tubercle bacilli which had survived pasteurisation in method 1 and drying by heat in method 2 were still capable of producing progressive tuberculosis in guinea-pigs inoculated subcutaneously with milk containing these bacilli, but the course of the disease produced by these organisms was very much slower than that of the disease produced in guinea-pigs inoculated with the same amount of untreated tuberculous milk. The tuberculosis produced by the heated bacilli was "latent" or "occult" for some four weeks, while young rabbits fed with milk containing these modified bacilli did not contract tuberculosis. The report forms a valuable addition to the series of food reports issued from time to time by the Local Government Board, and it appears clear that if precautions were taken to guard the condensed or dried milk products from recontamination they would, generally speaking, be safer to use than raw milk.

EPILEPSY AND OPERATION UPON THE FEMALE PELVIC ORGANS.

IT is stated by some writers that the development and commencing activity of the female sexual organs are in some way concerned with the onset of epileptic convulsions. It has also been said that the time at which the menses cease to appear is again apt to be attended with the occurrence of epilepsy, but Nothnagel denies that this is the case. It would not be difficult to find a number of cases recorded in medical literature in which the onset of epileptic fits coincided with great accuracy with the occurrence of the menstrual period. Cases, too, are to be found in which the fits have ceased during a pregnancy, only to recommence with the return of the monthly periods. When we bear in mind the increased nervous excitability of the woman at the menstrual period, and further, when we remember the tendency to periodic recurrence of epileptic attacks and the periodicity of the monthly periods, it is not surprising to find that in a certain number of women the two conditions coincide so frequently as almost to lead to the conclusion that there is some definite relationship between them. There is, however, no certain proof of any etiological relationship between uterine and ovarian disease and epilepsy. Sir William Gowers said, "Of epilepsy due to disease of the uterus or ovaries nothing is seen except by gynaecologists," and from the point of view of a judge demanding evidence the statement stands. In spite of this opinion from so high an authority a number of cases have been recorded in which various operations have been carried out upon the pelvic organs of the woman for the purpose of curing epileptic fits. Dilatation of the cervix, the treatment of erosions, the amputation of the cervix, and even the removal of the healthy ovaries have been advocated, and indeed practised, from time to time with reputed benefit to the patients. That the fits have ceased and in some cases have never returned has been adduced as proof of the value of the particular procedure

adopted. It is, however, important to remember that the same may be said for many different operations, and it has been shown that any surgical procedure on any part of the body may influence favourably, for a time at any rate, the course of epilepsy. Osler quotes White as having collected a series of cases in which such diverse operations as ligation of the internal carotid, circumcision, castration, tracheotomy, excision of the superior cervical ganglion, and incision of the scalp have all been practised, often with good results. The extraction of a carious tooth has not infrequently had an equally good effect, or a treatment for worms. Fagge mentions the case of an American who had been castrated and treated with nitrate of silver in the hope of curing his epilepsy. His skin looked as if it had been polished with blacklead, but the result of the combined treatment was negative so far as the disease was concerned. A recollection of these and many similar facts concerning the operative treatment of epilepsy should prevent any gynaecologist who is careful to take a broad-minded view of his patients, and who has freed himself from the old and utterly erroneous belief, "*mulier tota in utero*," from practising the operation of removal of the healthy ovaries for the cure of epilepsy. The old-fashioned term "spaying" has rather dropped out of use at the present day, but if the enterprising surgeon who contemplates this operation will recollect that he is in reality spaying his patients he may think twice before carrying out such treatment. Naturally, if the pelvic organs are diseased and require removal this should be done, and if the patient also suffers from epilepsy she will no doubt derive benefit from the operation, and may even be cured for a time or completely of her convulsions. This is, however, no argument for the removal of healthy ovaries, and we should not have believed that such an operation was practised at the present day had not a correspondent written to ask our opinion of this procedure. If the pelvic organs are diseased in a case of epilepsy any necessary medical or surgical treatment should be carried out coincidently with the appropriate medical treatment for the disease. In a very few rare cases in which the genital tract is so malformed that the patient can never marry, as, for example, with absence of the vagina, and where at the same time she suffers from epileptic attacks recurring at monthly intervals, oöphorectomy might be justifiable. The removal, however, of the healthy ovaries, when a normal genital tract is present in an otherwise healthy woman, in the hope of curing epilepsy, is not likely to be successful and is never, in our opinion, necessary or justifiable.

GRADUATED EXERCISES AT OUR HOME HEALTH RESORTS.

THE observation that so many of our home health resorts present ample facilities for a course of graduated exercises in functional disorders of the heart is opportune and should receive careful consideration. In an interesting paper which Mr. J. S. Kellett Smith has sent us he refers, for example, to the extreme suitability of Eastbourne for the treatment of favourable cases, and there can be little doubt that other seaside health resorts present similar opportunities when their environment comes to be carefully studied. As Mr. Kellett Smith points out, even under normal circumstances it is not every patient who can visit a continental health resort,

and it is not every case that can stand the journey. But a preparatory course—resisted exercises, massage, carbonated baths, or Bergonié treatment—can be given locally if necessary, and in addition to a favourable situation—near the sea-level and sheltered from the prevailing winds—and a mild winter climate, the disposition of the ground in many of our seaside places probably offers an excellent arena for carrying out the exercises for the terrain cure. With this object in view he has mapped out a course at Eastbourne, giving the various gradients on the parades and sea front, beginning with gentle exercises and ending with a more rigorous treatment by gradually bringing the patient to accomplish a stiff climb on the Downs and to Beachy Head. The principle throughout is to strengthen the heart by making it work with a lightened load, this being obtained by restriction of fluids when necessary and by the dilatation of the peripheral vessels in the big muscle groups and skin produced by exercise. Exercise is given by walking along roads of graduated steepness, commencing at level and progressing to hill-climbing, the activity and distance being increased as the case improves. The suggestion seems to us to be an admirable one, and should set other seaside authorities thinking.

THE FUNCTIONAL CAPACITY OF THE KIDNEY.

THE problem of investigating the functional activity of the kidney is admittedly a difficult one in view of the uncertainty which still dominates the definition of the renal function, which some consider to be under the influence of simple physical or physico-chemical laws, while others contend that it is controlled by laws, mysterious and unknown in their essence, like those which are attributed to the so-called vital energy. Dr. L. Pezzana¹ has studied the application of the phenolsulphonphthalein test to this question, and considers it markedly superior to all others for estimating the functional capacity of the kidney from the point of view of its facility and of rapidity of elimination. Phenolsulphonphthalein, discovered by the American Ira Ramsen, was first proposed for the study of the renal function by Rowntree and Geraghty, who proved its harmlessness and exclusive elimination by the kidney. It is administered by subcutaneous, intramuscular, or intravenous injection in doses of 6 mg., and in normal conditions is completely eliminated in from two to four hours. In the urine phenolsulphonphthalein is discoverable by simple alkalisation, and the quantity also may be easily estimated by means of a suitable colorimeter. The patient is made to drink 200 to 300 c.c. of water and then to micturate so as completely to empty the bladder, prior to the injection being made, preferably into the gluteal muscles. The urine passed after 6–10–15 minutes is received into vessels containing a few drops of solution of caustic soda, and the moment when elimination begins is shown by the red colour imparted to the urine as soon as it comes into contact with the alkali. For the estimation, the urine passed in the first hour is collected, 10–15 c.c. of a 15 per cent. solution of sodic hydrate added, and diluted with water to a litre; a portion of this is then placed in the colorimeter, which gives the actual percentage eliminated. The same is done with

¹ Il Policlinico, vol. xxi., 1914, Medical Section, Fasc. 12, December, 1914.

the urine passed during the second, third, and fourth hours. The normal colour of the urine does not usually affect the colorimetric estimation even in cases when the samples only contain 10-20 per cent. of the substance and satisfactory practical results can be obtained. In cases of abnormal colouration, however, from jaundice or blood, it is better to decolourise the urine with animal charcoal or precipitate the pigments by acetate of lead. The results of the author's researches in cases of nephritis show that neither in the acute nor chronic forms does the kidney ever become impermeable to phenolsulphonphthalein, but there is a marked delay in its elimination, and a still more marked diminution in the total amount eliminated. By applying the test in cardiac affections, with and without perfect compensation, an important fact was elicited. In both these classes of case the elimination was good, although the total quantity was slightly below normal, and whereas in the latter class clinical methods showed renal stasis in a marked degree the test proved that the functional capacity of the kidney was very much greater than in cases of nephritis, even where examination of the urine did not disclose any serious changes. This fact shows the value of the test in those cases where great diagnostic difficulty occurs as to whether renal changes are secondary to stasis, and therefore to the cardiac condition, or whether the latter condition is not on the contrary secondary to the nephritis.

THE MEDICAL SCHOOL OF MELBOURNE UNIVERSITY.

IN 1852 Dr. Anthony Colling Brownless, a distinguished student of St. Bartholomew's Hospital, settled in Melbourne, and in 1855 he became a member of the council of the recently founded University of Melbourne which had been established two years previously, and at once devoted his energies to bring about the establishment of a medical school. On his motion it was ordered in 1856 that lectures in medicine should be delivered in the ensuing year. Dr. Brownless in 1857 submitted a scheme providing for professors of anatomy, physiology and pathology, materia medica, therapeutics and dietetics, and a staff of lecturers; but when an application was made to the Government for a grant of £21,000 for the erection and equipment of the necessary buildings, it was objected that the time was not yet ripe, so the grant was not forthcoming. In 1858 Dr. Brownless became Vice-Chancellor of the University and efforts to obtain Government assistance were repeated but without success. In 1861 the Medical Society of Victoria took the matter up, and after discussion with the medical school committee, now organised as a definite body, it was determined to start the school at once though on a modest scale, the cost of the buildings not to exceed £4000, and the scheme submitted by Dr. Brownless in 1857 was accepted on this basis. On account of a falling off in the revenue it was stated again that funds for the buildings could not be provided. The Vice-Chancellor suggested a general retrenchment of expenditure, and the university lecturers on law and civil engineering generously gave up a portion of their salaries to assist in the formation of the medical school. In 1862 a five years curriculum was laid down, with five examinations for the degree in medicine. Dr. John Macadam was appointed lecturer on chemistry, and on the

nomination of Sir James Paget and Sir Richard Owen Dr. George Britton Halford was appointed professor of physiology. From this time onward progress was rapid. In 1863 the medical school buildings were begun, and in 1864 the Melbourne Hospital opened its arms, though without any excess of enthusiasm, to the first batch of third year students. In that year the medical school buildings were completed, and this was the date chosen by the Medical Faculty of the University as the point from which its jubilee, celebrated last year, should be computed. An interesting account of the jubilee has been published in book form.¹ Sir Harry Brookes Allen, M.D., Dean of the Faculty of Medicine, traces the history of the school in detail, with many interesting pictures of the buildings in earlier and more recent times and many portraits of those to whose devoted services the progressive building-up of this school to its present high standard is due. An amusing echo of the mid-Victorian conflict between religion and science" is related by Professor Allen. When Professor Halford in 1869 applied to the council for permission to give a public lecture on "Protoplasm" it was refused on the ground that "matters of politics or religion should be avoided." Melbourne University was early in the field in the encouragement of women medical students, and Mr. Grice, the president of the Melbourne Hospital, pays a high tribute to the great credit its women graduates had brought to the school and to the high average place they had attained in the class lists.

MASTITIS DURING PREGNANCY.

FEW cases have been recorded of mastitis during pregnancy. In the *Boston Medical and Surgical Journal* of Dec. 24th Dr. B. R. Whitcher has reported the following case. A rather poorly nourished woman was seen on Feb. 2nd, 1913. She was of nervous temperament and subject to dyspepsia and constipation. She had been married in the previous November, and had a fall in which she struck her right arm against her breast. Ever since a spot, which was sore and tender, especially at the time of menstruation, remained. On examination a hard nodular lump was felt to the inner side of the nipple. Under ichthyol and belladonna ointment the symptoms were greatly relieved. In October, 1913, she became pregnant. In April, 1914, she was again seen for a tense, brawny, and very tender lump on the inner side of the right breast. Ichthyol and belladonna ointment were again used, but the lump became more painful. As it was thought that the pain might be due to early lactation aggravating the old injury, the breast pump was applied and half an ounce of milky fluid was drawn off with considerable relief. After a few days the lump began to enlarge and became redder and more brawny. On May 10th an incision was made under ether and nearly 3 oz. of pus escaped. A counter-opening was made for free drainage and gauze wicks were introduced. Healing was complete by June 5th. Two other abscesses formed—one outside the nipple, the other in the upper and outer quadrant. It was arranged to operate on them on June 14th, but labour came on and was perfectly normal. On the following day there was so much pain that the abscesses were opened and drained. The infection was of the

¹ University of Melbourne Medical School Jubilee, 1914. Melbourne: Ford and Son. Pp. 108.

diffuse interstitial type. Dr. Witcher refers to the few recorded cases of abscess of the breast during pregnancy—all in American or German literature. In one case an abscess developed in the ninth month after an attack of facial erysipelas. In another double mastitis followed eczema of the nipples in the sixth month. Incision of the right breast yielded pus, of the left turbid fluid. A primipara developed an abscess after being scalded with hot coffee. In all the cases hand-feeding of the child had to be adopted. The etiology of abscess of the breast during pregnancy appears to be as follows. In the majority of women pyogenic organisms are present on the nipples and in the milk ducts in greater or less number, according to the habits of cleanliness. In some cases organisms may be present in the blood stream. As a rule, these organisms are innocuous, especially when there is a general condition of good bodily resistance. But when engorgement of the breast occurs conditions favourable to their growth are developed, and when the breast is injured before or during pregnancy the resistance is still further lowered. In the case reported by Dr. Witcher the underlying cause was the injury to the tissues of the breast, which never regained their normal condition. Possibly the ill-nourished patient had pyogenic organisms in her blood, for she had also an abscess of the finger. In the first case quoted, with such an infection as erysipelas the blood may have contained organisms. In the second case infection probably took place through the eczematous nipples. In the third case there was no visible solution of continuity at the site of the burn. Probably the organisms were already present in the milk ducts and attacked tissues the resistance of which was lowered by the burn.

CONGENITAL HEART-BLOCK.

MORE than ordinary interest attaches to the report by Dr. T. R. Whipham¹ of two cases of congenital heart-block. We believe that the first case, aged 2 years 2 months, is the youngest on record in which the definite proof of heart-block has been established. In this case, a well-nourished and full-time female, the pulse was slow, full, and regular. The heart-rate varied between 48 and 80 at different times. Over the præcordium a loud systolic murmur was audible with maximum intensity near the left sternal border, between the apex and the pulmonary area. Admitted into hospital with whooping-cough and some bronchitis, the pulse still remained at only 64 per minute. Fits of coughing did not quicken the rate; no cardiac symptoms were ever noted. There was a polycythæmia of 8,400,000 red corpuscles, and hæmoglobin was 110 per cent. The electrocardiogram showed definite 2:1 heart-block; that is to say, the auricular rate was twice that of the ventricular. The cause of the block was attributed to a congenital defect, possibly a patent inter-ventricular septum, involving the auriculo-ventricular bundle in that vicinity. The murmurs would depend on this and not, of course, upon the incidental heart-block. The interest of the second case, of a girl aged 12 years, in whom a complete heart-block was proven by galvanometric methods, was that there was reason to believe that such a block had existed for six years, yet it was only at the

age of 11½ that any cardiac symptoms occurred. These showed themselves as pain around the heart on exertion. The pulse-rate lay between 50 and 60 per minute and was slightly irregular, whilst in this case, as in the other, there was a loud systolic murmur of maximum intensity in the fourth interspace near the sternum. The same pathological cause is suggested for this case—namely, a congenital defect.

THE Council of the Royal College of Surgeons of England has granted permission to the Fellows of the Royal Anthropological Institute and to the Members of the Prehistoric Society of East Anglia to hold a combined meeting in the museum and theatre of the College on Feb. 23rd. Many recently discovered specimens will be shown and discussed. The meeting commences at 2.30 P.M. On the evening of the same day the combined societies will meet at 8.15 in the rooms of the Royal Anthropological Institute, 50, Great Russell-street, W.C., when Mr. Charles Dawson will give an account of the various types of implements and cultures met with in the deposits along the valley of the Sussex Ouse—including what may be described as the "Piltown" culture.

Lord Lamington has been elected a trustee of the Museum of the Royal College of Surgeons of England in the place of Sir Edward Fry, resigned.

HISTORY OF PUBLIC HEALTH IN DUBLIN.

IN an appendix to the annual report on the health of Dublin, noticed in THE LANCET of Jan. 9th, Sir Charles Cameron gives some interesting information on the history of public health administration in Dublin. The first trustworthy information on the state of health of Dublin dates from 1798, when the Rev. James Whitelaw made a careful survey of the city, and in his report drew attention to the shockingly insanitary condition of the tenements occupied by the working classes. Matters appear to have changed little in the next half century, for in 1845 Dr. Thomas Willis, in a book on the "Social and Sanitary Condition of the Working Classes in the City of Dublin," spoke of the working classes as "sunk into that state of abject misery for which there is no parallel in any country in Europe." Within the next 20 years the municipal authorities began to show some sporadic interest in the health of the city, and in 1864 Edward Dillon Mapother was elected the first medical officer of health, and ten years later Sir Charles Cameron succeeded him. It was not, however, until 1879 that the statistics of mortality could be regarded as accurate. In that year the death-rate from all causes was 37.5 per 1000, and from nine specified infective diseases 6.2 per 1000. In the following year both rates reached their maximum—37.7 and 7.9. Thereafter they gradually sank, and in 1913 the general death-rate reached its lowest point—20.3 per 1000, and the zymotic death-rate was 2.4. The lowest zymotic rate was in 1905—viz., 1.5. It is noteworthy that within the past few weeks the general death-rate has approached 40 per 1000. Sir Charles Cameron furnishes an account of various activities of the Dublin corporation, which have had an important effect on the sanitary condition of the city. Of these the chief are the supply of the excellent Vartry water brought to Dublin in the late sixties; the substitution of a water-carried sewage system for the old system of privies and ash-pits; and the recent introduction of a system of main drainage by which the sewage is discharged after precipitation into the bay instead of directly and untreated into the Liffey in its course through the city. Sir Charles Cameron also details the various steps taken by the corporation since 1881 to improve housing conditions in Dublin.

¹ Proceedings of the Royal Society of Medicine, Section for the Study of Disease in Children, December, 1914.

THE FOOD-SUPPLY OF THE GERMAN PEOPLE.

(FROM A SPECIAL CORRESPONDENT IN A NEUTRAL COUNTRY.)

In a pamphlet¹ of nearly 200 pages published at the end of the year 1914 Dr. Paul Eltzbacher, acting Rector of the Berlin High School, has edited an authoritative statement on the food-supply of the German people and England's plan to starve them out. In the preface he states that the problem is only to be solved by "combination of the politician, national economist, statistician, physiologist, farmer, geologist—yes, even the experienced housewife," and to this end he has put under contribution members of various faculties, amongst whom the name of Rubner and Zuntz will stand out as well known in the domain of hygiene and physiology. A paper band round the volume states that the book is intended to "show the seriousness of the situation and the means to assure our food-supply," and the whole is the result of four months' work in which, "after initial differences" of opinion, all the writers were finally "united on all essential points" and in the common aim that the "success of our weapons should not be spoiled by economic mistakes." The whole forms an exposition of the problems of a nation's food-supply with such wealth of information and authority as can hardly ever have been brought to bear before on the topic.

Chapter I. states under three headings

The Problem of an Isolated Political Economy.

1. The first deals with the *starvation plan*. Germany and Austria are completely surrounded by hostile lands except for five small neutral countries on whom no reliance can be placed. Germany in normal times has 21 milliard (£1,050,000,000) and Austria 5 milliard (£250,000,000) marks of external trade, and difficult as it might be to do without exports it might be impossible to exist without imports. The plan originating in England was stated more frankly in France, where the physiologist Charles Richet wrote in the *F. garo*: "Before nine months are out Germany will be on her knees suing for peace, unless indeed already speechless with hunger."

2. The second section deals with the conception of *Germany as a closed economic area* which must arrange to do the best it can for itself and by itself. Austria is in relatively less danger with its thinner population and larger agriculture. Germany's relation of external trade to population being three times greater. The "conquered lands" cannot be relied on for food with starvation already setting in. Denmark has already forbidden the export of barley. England states that she can last out indefinitely, and even though she may have made a miscalculation as regards the loss of German dyestuffs and her business as middleman, yet it would be unsafe to reckon on a short war, and Asquith may have weighed his words before he spoke of a possible 20 years. "The best means to shorten the war is to prepare for a long one."

3. The *problem of an isolated political economy* is a new one for economists and statesmen. The modern fashion has been to think of the "world-wide" and the "personal," and internationalism and individualism have filled the field to the exclusion of nationalism. Now all this is changed; production must give place to consumption as the leading idea, and the supply of labour where needed becomes more imperative than the problem of unemployment. The foundation of non-profitable businesses may become a necessity, e.g., the drying of potatoes or the manufacture of nitrogenous manures. The freedom of the individual must be limited for the benefit of the State. "At this time everyone is, so to speak, a

socialist." Export must be prohibited and maximum prices fixed, as well as even more drastic measures. In considering how all this may be done no optimism is permissible. "We must reckon not only with bad weather for the harvest, but also with a lack of skilled labour in the fields, of horses, and of manure, affecting the yield." The organisation of the people's food must not fail.

Chapter II. deals in greater detail with

The Reduction of the Food-supply.

1. *Reduced import.*—The import of fodder, amounting yearly to 10,000,000 tons, must largely cease, although the Baltic is still available, and at present increasingly so. The conception of conditional contraband keeps back most foodstuffs from direct import, nor can the small neighbouring neutral countries be expected to do much more than cover their own needs during the war. Belgium is the most thickly populated country in the world, and Russian Poland does not stand far behind. Roumania's supply of provisions will be entirely swallowed up by Austria.

2. *The home production of foodstuffs.*—The North Sea fisheries have been reduced to a minimum. Agriculture must also suffer from the lack of skilled labourers, horses, and manure. The farm labourer cannot at first be replaced by other workers, although his place may possibly be taken by prisoners of war from agricultural districts. Half a million horses have been taken by the army, and the usual annual import of 140,000 from Russia cannot be counted on. For manure four products are necessary. Potash and lime we possess in abundance, being, indeed, the chief exporting land of potash salts. On the other hand, there is a lack of phosphoric acid and of nitrogen. Phosphoric acid is normally covered by the supply of Thomas-slag, a by-product of the iron industry, and to the extent of one-third by the import of foreign phosphate. Some compensation may come from the Belgian iron fields and crude phosphates, but a deficit will probably remain. Nitrogen has so far come about equally as a by-product in the manufacture of coke and in the form of imported Chile saltpetre; and the latter will no longer be available, although the former may be increased and supplemented to some extent by means of calcium nitrite. In addition to these causes the agricultural production of East Prussia and Alsace-Lorraine has suffered, whilst it is not safe to reckon on a lasting out of stores in reserve. "We are as a people placed in the position of an individual who has up to now had a considerable income at command, and who learns by means of a sudden severe misfortune that with careful husbandry he can get on with much less."

Chapter III. deals with

The Food Requirements of the German People.

Section 1, on the *aim of nutrition*, gives a short sketch of the function of the human organism as a machine, distinguishing between the food-supply required to produce the running energy and that to make up for loss of substance. For the latter purpose and only for this is proteid required. Sufficient proteid must be supplied to make up for the regular loss, but not more than this, as fat and carbohydrate are precisely of the same value as producers of energy. 1 gramme of fat produces 9·3 calories, 1 gramme carbohydrate or proteid produces 4·1 calories; and Rubner's work makes it certain that from the point of view of energy-production it is quite immaterial whether the body uses one or other of these sources of supply. If, therefore, there are public grounds for reducing the consumption of proteid this can be done without concern so long as the hygienic proteid-minimum is retained. This quantity is a relatively constant one, whereas the requirement in energy-producers varies largely according to the mechanical energy of the subject.

2. *The requirement in calories* of the German people for a year must be determined. This should be expressed in net calories, allowing for the fact that proteid is excreted incompletely metabolised, whereas fats and carbohydrates burn without waste, and allowing further for the incomplete utilisation of substances of difficult digestion. The energy requirement of the organism depends on the work which it has to do and the warmth which it must produce, further to some extent on the temperament of each subject. Carl von Voit's basis for a man of 70 kilogrammes weight on a mixed diet gave 3050 calories for moderate work and 3575 calories for heavy work. Rubner's figures vary from 2445 to 6109 calories, and the average figure of 3000 may be taken as not

¹ Die Deutsche Volksernährung und der Englische Aushungerungsplan. Eine Denkschrift von Friedrich Aereboe, Karl Ballod, Franz Beysschlag, Wilhelm Caspari, Paul Eltzbacher, Hedwig Heyl, Paul Krusch, Robert Kuczyński, Kurt Lehmann, Otto Lemmermann, Karl Oppenheimer, Max Rubner, Kurt von Rümker, Bruno Tacke, Hermann Warmbold, und Nathan Zuntz. Herausgegeben von Paul Eltzbacher. (Friedr. Vieweg und Sohn, Braunschweig, 1914.)

too low. The influence of age and sex must also be considered. The requirements of the adult woman can be based on the lower male standard of work. Engel, Rubner, Atwater, and Zuntz have given tables for each year of life, the simplest being the new table of Zuntz, in which 40 per cent. is reckoned for age 2-4, 50 per cent. for age 5-9, 75 per cent. for age 10-14 years, from then on 100 per cent. for a male and 80 per cent. for a female, with a drop to 90 per cent. for the male after 60 years. Worked out on the basis of the German census of Jan. 1st, 1911, with a total population of 64,992,238 persons, an average of the various scales gives 49,543,889 units, which must be increased by 4·6 per cent. on account of the increase of population to the present year, giving 51,822,908 units. The calculation, 3000 calories $\times$ 365 $\times$ 51,822,908 = 56·75 billion calories, gives the total requirement of the German people for a whole year of the war.

3. The *proteid requirement* must be separately estimated, as it forms the building material of the body and cannot be replaced by any other foodstuff. Its complicated molecule contains not only carbon, hydrogen, and oxygen, but also invariably nitrogen and sulphur, in many cases phosphorus, and often iron and other elements. As the nitrogen content varies only within narrow limits, this can be used as a guide and the nitrogen balance of the body worked out. With an excessive intake of proteid nitrogen is at first stored up, but soon excretion again equals intake. The smallest intake of proteid with which the nitrogen balance can be maintained is known as the physiological proteid minimum. This may be as low as 17 grammes, but probably the organism comes thereby to harm in the long run. The hygienic proteid minimum is the quantity necessary to maintain the body in perfect condition and energy. This quantity varies within fairly wide limits with the kind of proteid and the composition of the rest of the food. The chief influence is exerted by the body weight. Voit held that for a body weight of 70 kilos, 105 grammes of proteid were necessary daily. This value was intentionally chosen high to allow of a certain margin, and, as Rubner pointed out, was taken from the statistical material of Munich, in which the consumption of meat is very large. Neumann in 1902 arrived at a value of 71 grammes; Schumburg in 1893 at an average value of 60 grammes; but as average values for all ranks of society on the usual mixed diet are being considered, it will be wise to allow for 70 grammes of proteid for an active man requiring 3000 calories of total energy. 70 grammes of proteid have a value of 287 calories, and therefore amount to 9·6 per cent. of the total food. On a vegetable diet this is easily possible, for potatoes contain only 7·1 per cent.; rice, 7·3 per cent.; rye bread, 8·7 per cent. of proteid. But for foods of animal origin a higher percentage of 15 per cent. to 16 per cent. of proteid must generally be reckoned. Hence, for the basis of this calculation it is assumed that the adult man takes 11 per cent. of his total calories in the form of proteid. For an average man of 3000 calories this gives 330 calories in the form of proteid, and therewith a daily requirement of 80 grammes of proteid; and in view of the fact of the varied diet of the population of town and country this is not too high a figure to take. The requirement of the adult woman may be put at 15 per cent. less, or 68 grammes; that of the child is 40 grammes for the first to the sixth year, 50 grammes for the seventh to the twelfth year, and 65 grammes for the thirteenth to the eighteenth year. Calculating now on the basis of the total population from the census of Jan. 1st, 1911, the total daily requirement of proteid is 4203 tons; and allowing as before for an increase of population by 4·6 per cent. up to the outbreak of the war, the yearly requirement of the German people works out at 4396 tons $\times$ 365 = 1,605,000 tons of proteid.

Chapter IV. treats of

The Actual Consumption of Food by the German People before the War.

In order to do this (1) the foodstuffs produced in Germany and used by man, and (2) the excess of import over export in such foodstuffs are determined. In order to determine further what part of the consumption is directly or indirectly from abroad it is necessary to add to the excess of imports in foodstuffs, the excess also in the importation of materials used in the raising of home produce. The consumption of meat, for instance, is given by the sum of beasts slaughtered in the country and the excess of import over export. But the

Total Consumption of Foodstuffs. Average of Years 1912-13.

Foodstuffs.	Total available foodstuffs.				Proportion of these foodstuffs coming from abroad.			
	Proteid	Fat	Carbo-hydrate	Milliards of calories	Proteid	Fat	Carbo-hydrate	Milliards of calories.
	in thousands of tons				in thousands of tons			
I. Vegetable foods—								
Cereals, pulses, and potatoes ...	1123·7	121·0	10005·5	46,653	160·7	10·1	982·7	4778
Vegetables ...	75·3	12·5	376·3	1,944	3·3	0·5	16·3	84
Fruits and nuts ...	23·2	36·0	411·5	2,117	6·2	8·5	131·2	642
Sugar and honey ...	0·1	—	1187·5	4,745	0·0	—	585·4	2338
Vegetable fats ...	—	184·4	—	1,715	—	158·9	—	1478
Cocoa ...	3·0	23·7	10·3	273	3·0	23·7	10·3	273
Alcoholic drinks ...	27·0	—	344·1	4,219 ¹	3·4	—	46·3	474 ²
Total ...	1252·3	377·6	12335·2	61,666	176·6	201·7	601·4	5391

¹ Of this 2716 milliards from alcohol.

² Of this 273 milliards from alcohol.

II. Animal foods—								
Meat and fats ...	431·9	1339·6	1·4	14,242	85·0	462·7	0·2	4655
Fish ...	52·4	28·7	2·0	490	33·7	21·5	1·5	346
Milk products ...	478·5	790·6	571·7	11,633	311·2	392·1	457·3	6764
Eggs ...	46·8	44·5	2·7	618	19·1	18·6	1·2	256
Total ...	1009·6	2253·4	577·8	26,983	449·0	894·9	460·2	12,021
III. Foods in general...	2261·9	2581·0	12913·0	88,649	625·6	1096·6	1061·6	17,412

Average Daily Consumption of Foodstuffs in 1912-13.

Foodstuffs.	Total available foodstuffs.				Proportion of these foodstuffs coming from abroad.			
	Gm.	Gm.	Gm.	Cal.	Gm.	Gm.	Gm.	Cal.
I. Vegetable foods—								
Cereals, pulses, and potatoes ...	46·2	5·0	411·0	1916	6·6	0·4	40·4	196
Vegetables...	3·9	0·5	15·5	80	0·1	0·0	0·6	3
Fruit and nuts ...	0·9	1·4	16·9	87	0·2	0·4	5·4	26
Sugar and honey ...	0·0	—	48·8	195	0·0	—	24·0	96
Vegetable fats ...	—	7·6	—	71	—	6·5	—	61
Cocoa ...	0·1	1·0	0·4	11	0·1	1·0	0·4	11
Alcoholic drinks ...	1·1	—	14·1	173 ¹	0·2	—	1·9	20 ²
Total...	51·4	15·5	506·7	2533	7·2	8·3	24·7	221
II. Animal foods—								
Meat and fats ...	17·7	55·0	0·1	585	3·5	19·0	0·0	191
Fish ...	2·2	1·2	0·1	20	1·4	0·9	0·1	14
Milk products ...	19·7	32·5	23·5	478	12·8	16·1	18·8	278
Eggs ...	1·9	1·8	0·1	26	0·8	0·7	0·0	11
Total...	41·5	90·5	23·8	1109	18·5	36·7	18·9	494
III.—Foods in general—	92·9	106·0	530·5	3642	25·7	45·0	43·6	715

¹ Of this 112 from alcohol.

² Of this 11 from alcohol.

proportion of this consumption due to the foreigner is obtained by the excess of imports in (1) meat, (2) live cattle, and (3) fodder used for feeding home cattle, all three expressed in terms of meat. The chapter ends with two tables, one giving the total consumption of foodstuffs for the average of the year 1912-13, and the same worked out in terms of daily consumption per head. These tables appear on the opposite page.

Under each heading a wealth of interesting detail is given. Thus of 11.9 million tons of home-grown rye, 1.1 million tons are reserved for seed corn and 2.7 million used for feeding cattle and for industrial purposes, leaving 8.1 million for human food, whilst half a million is exported. Of the 4.5 million tons of home-grown wheat on the other hand only 0.4 million is used for fodder and 0.3 for seed corn, while 3.8 remain for human use, and in addition 2 millions are imported. Other enormous items in the import list are 2.9 million tons of barley and 1 million tons of maize. On the whole group 14 per cent. of the proteid and 10 per cent. of the total calories required are at present imported. Fruit trees in the German Empire amount to 61 million apples, 29 million pears, 81 million plums, and 25 million cherries, of which the yield is estimated at 28, 16, 3, and 9 kilogrammes per tree respectively. Of sugar the home production amounts to 1.9 million tons, while 0.6 million is exported, so that something like 50 per cent. more sugar is produced in the country than is required. Under the heading of meat the number of beasts slaughtered amounts to: of swine 23.8 millions, calves 43, sheep 2.7, and cows 1.7, the amount of pork being, therefore, nearly five times that of any other meat. Of other creatures one notes 171,000 horses, 8000 dogs, 6 million tame rabbits, 13 million geese, and 80 million fowls, ducks, and pigeons. Reckoning imported barley in terms of pig-flesh it is estimated that 0.6 out of 2.6 million tons of pork are owing abroad as well as a very large quantity of imported animal fat. Of fish, as large a proportion as 64 per cent. of the total proteid and 71 per cent. of the total calories is imported. Of milk products 136,000 tons more are imported than are exported, largely in the form of butter and cream; also to a smaller extent cheese and milk. Enormous quantities also of cattle fodder are imported, including 2 million tons of bran and half a million ton of oil-cake. For calculating the proteid content of this, as utilised in the milk produced from them, 664,000 tons of raw proteid are estimated to account for 9.5 million tons of milk, and the final result gives 65 per cent. of proteid and 38 per cent. of total calories of milk products are imported. In eggs, a census of hens and turkeys is available, and the assumption made that a hen lays on an average 70 eggs in the year, weighing 50 grammes each, giving a total production of 257,000 tons of eggs. In spite of this, 41 per cent. of the proteid of eggs comes from abroad.

Chapter V. considers the question of

The Deficit and How to Cover it.

1. It is first necessary to determine the size of the deficit during the war, allowing on the one hand for the exclusion of foreign products, and on the other for some diminution of home production during the war. In a double sense must the deficit be considered in comparison with previous consumption as well as with actual physiological necessity. On the basis of the consumption of the years 1912-13, and allowing for the increase of population, the consumption during the war on present lines would amount to 90.42 billion calories with 2307 million tons of proteid. On the other hand, the actual physiological requirements for 68 million Germans works out at 56.75 billion calories and 1605 thousand tons of proteid. This means that our consumption exceeds our actual need by 59 per cent. of nutritive value and 44 per cent. of actual proteid. These figures are at first sight very surprising, especially in view of the careful statistics on which they are based. But the causes of the discrepancy are discoverable. To a certain extent the difference is inevitable even with extreme economy, as losses are unavoidable, especially when foodstuffs pass through many hands. But far greater than this is the unnecessary elevation of the consumption beyond actual need occurring in the houses of well-to-do people and due to actual waste of foodstuffs. The actual consumption exceeds the physiological requirement more in total calories than in proteids, and it may therefore be guessed that fats and carbohydrates are wasted more than proteid. These are in part more liable to spoil, especially as on account of their cheapness less care is bestowed on them. Potatoes, vegetables,

fruit, and fat are lost in enormous quantities on the way to the consumer, whereas grains are more permanent and more care is taken to keep meat and milk fresh. In order to reckon our deficit we must determine what amount of foodstuffs we should be in a position to consume on the basis of our own production without importing from abroad, and of course without export. On the average of the years 1912-13 we have produced at home 71.24 billion calories and 1636 thousand tons of proteid. Home produce is likely to have increased since then up to the commencement of the war, but in order to be on the safe side we have reckoned with a diminution rather than an increase, bearing in mind that the next harvests will probably diminish on account of lack of trained labour, horses, and manures. Other sources may also be shorter during the war, as, for instance, the North Sea fishery. And in East Prussia and Alsace-Lorraine stores have been destroyed and removed and production lessened. Full account is taken of this by assuming a diminution of 5 per cent., when the figures stand as follows:—

Nutritive values.	Calories in billions.	Proteid in thousand tons.
Requirement	56.75	1605
Actual Consumption	90.42	2307
Available on continuance of existing conditions	67.68	1554

From this we see that if continued on present lines our economy will show a deficit of 25 per cent. of total foodstuffs and of 33 per cent. of proteid on what we have hitherto consumed. The position is more favourable if we consider actual physiological requirements when we have 19 per cent. more total food than we required and 3 per cent. too little proteid. The cause of the less favourable character of the second item is the complete falling out of foreign fodder for the production of such proteid-rich foods as meat or milk, whereas home-grown sugar is available in its entirety. With every day of continuance on present lines our deficit is increasing, and if no change is made for six months the deficit of available proteid for the following six months will be increased to 50 per cent. "This is the seriousness of the position." To cover the deficit in calories is a relatively simple task. To cover the deficit in proteid is a much more difficult one. Effort must be made to supply the lacking 3 per cent., and with an additional margin for the losses occurring between producer and consumer. "We can cover our deficiency," but certainly not in the sense of being in a position to consume the same quantities as before the war, but to more than cover the physiological need. "The means to do this is an alteration of our economical life in accordance with the situation created by the war." We have had success in limiting out travelling requirement to that of our forefathers, and can certainly do the same for our food requirements, becoming also in so doing more healthy. Any personal interest must be subservient to the good of the community, and the plea of the sugar industry for special treatment is not valid, as in such a time no money need be earned, but the nation must be fed. The problem requires treatment as a whole and on broad principles.

2. *Storage.*—Before the outbreak of the war Ballod had proposed the formation of State grain stores in which large quantities of corn were to be stored up against the outbreak of war. This was unfortunately not done, but at all events the quantities of grain and pulses required for spring sowing must be saved, and at the same time pork must be preserved in large quantities as the slaughtering of pigs is now inevitable, and the present glut would otherwise be followed by a later scarcity. At the same time the largest possible amount of foodstuffs should be obtained from neutral countries, as well as seed, manure, and fuel for motors. The guiding principles should be high nutritive value and small storage room. The prohibition of export of foodstuffs must be made absolute and sugar no longer exported, even though it should not reach England. No consideration for friendly relations with neutral countries should interfere with this most necessary condition.

3. *Adaptation of production.*—The essential point is the nutritive and especially proteid value of what is produced, and farmers must subordinate their personal interest to that of the community. Ground must be reserved for those vegetables which afford a large quantity of nutriment, such as beet and potatoes. The necessary seed for producing summer crops of grain and fodder must be provided, and the

difficulties owing to lack of labour and of manure surmounted in every possible way, whilst the culture of moors and of areas not at present available for agriculture must be taken in hand. Cattle must be fed with fodder at present too little considered, such as beech nuts, acorns, and green stuff, and every waste of fodder must be carefully avoided. The cost is a secondary matter, and the State must see that the necessary steam and motor ploughs are manufactured as well as the needful nitrogenous manures. Garden and wild fruits must be carefully stored. Foodstuffs must no longer be used for technical purposes—e.g., starch and spirit from grain and potatoes, soap from fats—except in so far as this cannot be avoided. The grain and potatoes used for feeding cattle have a far higher value if employed directly for the nourishment of man. "With the milk, corn, grain, and potatoes which a pig consumes, double as many human beings can be nourished as with the resulting pork." The experiments of Zuntz, Kellner, and other have shown that more than 50 per cent. of the calories are always lost by passage of foodstuffs through an animal. For the same reason the production of butter is to be restricted, and finally, careful attention paid to storage and preservation, especially of vegetables in the winter and of fruit in the form of jams and preserves.

4. *Adaptation of habits of life.*—The third and last method of covering the deficit is alteration of habits of life, and this need by no means be a radical one. Small alterations will suffice. Less meat and fat must be used than in the last few decades, but an exclusively vegetable diet is not necessary, and even vegetable foods may be limited without harm. Just at present an excess of pork is available, but as we have seen this should be preserved and not immediately consumed. In individual households the avoidance of loss and waste is imperative. Rubner calculated in Berlin that daily 20 grammes of fat are wasted in the effluent for each head of the population. Apart from economical use of food other points have to be considered. Starch should not be used for clothing, and coke is to be employed in preference to coal in order to make available the necessary ammonia for manure.

5. *The carrying out of the necessary measures.*—Three methods will be required: new laws, careful administration, and instruction of the people. The edict of August 4th, 1914, empowered the Bundesrat to enact all necessary economic measures. Maximum prices may be fixed where, as in the case of sugar, it is desirable to encourage a large consumption; minimum prices where, as in the case of meat, storage is preferable to immediate use. Regulation of prices is especially desirable where the use of one article is preferable to that of another—e.g., the abundant rye in preference to the limited wheat. Local authorities can buy up and store the present glut of pork; ensure a sufficiency of seed grain for the spring; and erect installations for drying potatoes and producing nitrogenous manure from the air. The most important measure remains—the instruction of the populace, which can be done through the agricultural societies, the trades unions, the national service of women, as well as through the press. If all these means are employed the English starvation plan will certainly be brought to naught.

Chapter VI. deals with

The Prohibition of Exports.

Three Royal edicts were already enacted on July 31st, 1914, dealing with foodstuffs, animals, animal products, and certain raw materials, the carrying out being left to the Chancellor. Certain exceptions have since been made which are not without importance.

1. *Grain.*—It is much to be regretted that our Government in friendly consideration for Switzerland allowed 2500 wagons of grain to be exported; but if this is done for Switzerland it may be a cause of complaint that similar consideration is not shown to other neighbouring neutral States. Switzerland as a small neutral country is also in the position to obtain its supply of grain through Italy. Denmark has not hesitated to prohibit the export of barley to Germany, and no political consideration can justify any relaxation with regard to our vital interests.

2. *Sugar.*—It is especially important that no sugar should be exported. The sugar industry obtained from the Government a relaxation of the prohibition in the sense that export should be permitted, deciding from case to case up to the amount exported in the year 1913—viz., 1.1 million tons.

But no consideration for the financial circumstances of a particular industry should result in our sending useful food out of the country. Rather the people should be encouraged to increase their consumption, which would use up the available supply if it reached the American count of 36 kilos. per head of population, and this is less than the English figure of 40 kilos. In 1904, when the price of syrup sank 29 per cent., the consumption of sugar increased rather more than correspondingly—by 34 per cent., in fact. This increased consumption of sugar can then partly make up for the shortage of fat. This consideration alone should suffice, but as a matter of fact of the 1.1 million tons 0.8 went to England, whether directly or indirectly, through neutral countries. The keeping up of the level of German exchange in neutral markets is a matter of entirely subsidiary importance. In consideration of all this the Government has already agreed to withdraw part of the concession from the sugar industry.

Chapter VII. is concerned with matters relating to

Agriculture.

1. *The crops to be chosen.*—The necessity is clear; we must not allow the deficit due to failing imports to be increased by lack of production. On the contrary, we must increase the home crops, and as far as possible such crops as yield a high proportion of proteid food. In this respect the pulses are almost equal to meat. On the average of the years 1912-13 we imported 251,000 tons peas, 31,000 tons beans, and 28,000 tons lentils, and the farmer should attempt to produce these at home, naturally with some care, as these crops are more dependent on local conditions than others. It has further been proposed to let the place of potatoes and beet to some extent be taken by the culture of corn. Imported wheat to the extent of 2,000,000 tons has fallen out, and although this may to some extent be replaced by the 600,000 tons of rye which we no longer export, a deficit still remains which might be made good with the 1,100,000 tons of beet sugar which have been hitherto exported. But the suggestion is inadvisable on two grounds: firstly, the beet and potatoes yield far more per unit of area than corn, both in value and in foodstuffs, and they deplete the soil far less in respect of nitrogenous constituents. They afford, too, fodder for more and better cattle, which in their turn yield more and better manure for the land. And secondly, the intensive culture of these crops exerts a much healthier influence on the agricultural industry in general, on the breeding of heavier horses and stronger oxen, on the manufacture of agricultural implements, and has produced an enormous increase in freight on canals and railways, thereby assisting in high degree the finances of the State.

2. *Seed corn.*—It is of the utmost importance that sufficient seed corn should be available for the spring sowing. First of all for summer grain. The limitation of available labour has in many places hindered the sowing of the winter crop, especially in East Prussia and Alsace-Lorraine, and consequently the summer crop must be largely increased. Where an oat crop is doubtful barley can be used to take the place of the imported barley for fodder. In all cases the right sort of grain must be carefully chosen in advance. Of pulses there is a risk that the available stock may all be used up by the spring. Similarly clover and grass seed must be obtained, and all this can only be done by the organisation of the State itself.

3. *Labour and traction.*—The lack of labour for the harvest has made itself less felt in the autumn than was feared. The superfluous industrial workers will gradually filter into agricultural channels, and the great number of prisoners of war—now much over half a million—will provide many well-trained agricultural labourers. The lack of beasts for traction is not so great as might appear at first sight. Some half a million horses have been claimed by the army and the import of some 130,000 horses has stopped. Since the total number is somewhat more than four and a half millions, this means a reduction of some 14 per cent. But the earlier breaking-in of the foals has already almost compensated for this, and not only oxen and bulls, but also cows, can be trained for ploughing without harm if their diet is increased by so much beet and potatoes. Steam and motor ploughs can be used more than is the case at present, and the greater landowners must lend them to the smaller ones in their neighbourhood. The hundreds of motor ploughs stored in the manufactories must also be put into use. For

steam and electrically driven ploughs there will be no lack of power; for the motors the supply of petrol may be replaced by benzol, which is a by-product in the manufacture of coke. The latter should be used as fuel, not only in the household economy, but also in the locomotive, and the price reduced to this end. Spirit was used extensively for motors during the first months of the war and may continue to be so used with the addition of a moderate quantity of benzol. Comparing the consumption of foodstuffs required to produce the alcohol for motors with that of oxen for traction the figures work out as 391 kilogrammes of starch for 28 oxen per day and 300 kilogrammes of spirit for a motor plough per day. The advantage rests, therefore, with the plough, which further only requires two hands, whereas 28 oxen necessitate at least seven labourers. The motor plough is essential in places where there is a lack of beasts.

4. *Manures*.—In order to produce a good yield sufficient manure is essential. Much more attention should be given to the storing of manure in order that the available nitrogen should not be lost. Various calculations have been made that the usual loss is some 30 per cent., or a yearly waste of at least 600 million marks (= £30,000,000) for the whole of Germany. The money value of this loss is some five or six times as great as that of imported saltpetre, and is about equal to the sum which German agriculture pays altogether for artificial manures. Little or nothing can be done with the various chemical preservatives, but since the loss is due to the activity of micro-organisms, and most of these require atmospheric oxygen, it can be prevented by avoiding access of air and keeping the dung firm and moist. Even so a loss of some 13 per cent. occurs. By covering with peat it can be still further reduced to 7 per cent., and a similar saving is effected by keeping the solid and fluid parts of the dung separate according to Soxhlet's method. Not less importance is due to the artificial manures. To them is largely owing the rise of our agriculture. In the last 30 years our harvests of grain and potatoes have kept pace with the increase of population. This has, in the first place, been due to the introduction and use of artificial manures; secondly, to the better results of plant breeding, the better working up of the soil with manure, the keeping down of plant disease, &c. It has been estimated that of these various factors the artificial manure is responsible for 50 per cent., more fruitful kinds of seed for 30 per cent., and other measures for 20 per cent. of the advantages gained. Four substances have to be considered: nitrogen, phosphoric acid, potash, and chalk, of which only the first three offer any difficulties to produce. Amongst them nitrogen is vastly the most important. A series of important experiments in various parts of the country by Hansen, Schultze, and Lemmermann have shown that without the nitrogenous element all other manure is of very little avail. In Germany potash is present in abundance, and only the difficulty of freight may hinder its sufficient use. The State must come to our aid by reduction of freight rates, and will be later on compensated by the increased freights for the crops themselves. The supply of phosphoric acid depends on the Thomas-slag, which is itself dependent on the iron industry and the needs of the army. To produce the superphosphates the supply of crude phosphate may be supplemented from Belgium, where such beds are present in the provinces of Liège and Hennegau. The necessary sulphuric acid to work up the crude phosphate into superphosphate has been much reduced by the loss of the imported pyrites. There are beds of sulphur-containing rock in Germany—for instance, at Goslar—the working of which would supply the necessary sulphur. In spite of everything that can be done there will still be a certain diminution in the supply of phosphoric acid, which should, however, not make itself perceptibly felt at present in view of excess of supply in the last few years. Immensely more important is the obtaining of sufficient nitrogen. It has been calculated that 8,000,000 double centners (a double centner = 100 kilos.) of nitrogenous salts less than usual are available, and that for each nitrogen unit lacking, $3\frac{1}{2}$ to 4 units less of grain will be produced by the fields. Thus an amount of 28–32 million double-centners less corn will be produced—i.e., about one-fifth of the total harvest. In 1913 more than half a million tons of Chile saltpetre were used as manure. The place of this can be taken by applying the nitrogen of the air with the aid of arc lamps, but the quantity so far has been minimal—38,000 tons in 1913. Next to saltpetre the most

important manure is ammonium sulphate, occurring in large quantities as a by-product in the distillation of coal. Its nitrogen content exceeded that of Chile saltpetre in the year 1913, and the quantity has increased since. Lastly, calcium nitride is produced by the action of nitrogen on calcium carbide, and this production increases from year to year. As along with the Chile saltpetre about one-half the available nitrogen has fallen out, the other sources must be stimulated to the utmost extent. The great electrical works of Germany possessed in 1913 some two million horse power, of which on the average only 18·8 per cent. were used. Technically it would be possible to produce enough calcium nitride by means of this power without interfering with the ordinary supply of electricity. The State must take this important matter in hand.

5. *Culture of moors*.—According to Fleischer we possess in Germany about 20,000 square kilometres of unused moor land which can easily be brought to useful cultivation by the addition of suitable manures. Half of this area probably requires only a supply of potash and phosphoric acid, possessing already sufficient nitrogen. Especially the Russian prisoners of war are agricultural labourers and could carry out this useful work to great advantage. When one considers that the hektar (1 hektar = $2\frac{1}{2}$ acres) of improved moor yields a certain harvest of some 20–30 double-centners of rye or oats, or 180–220 double-centners of potatoes, or 50–60 double centners of valuable hay, or on grazing on 3–4 double-centners of living cattle, the value of this work may well be seen. The latest experiments have shown that vegetables especially flourish on such a soil, especially with hand spadework, which is available in sufficient quantity with the help of the prisoners of war and the out-of-works. The stretch of country on each side of the Hamburg-Bremen Railway is particularly suitable. Further increase of harvests could be attained by extending the area of sewage works in the neighbourhood of large towns. These are mostly far too small and suffer from excess of effluents. Finally, an increase in agricultural production could be attained by dividing up large tracts amongst peasant proprietors, who would then carry out more intensive culture of the smaller areas. In this direction also, when the war has carried off so many owners of large properties, or made it impossible for them to conduct them further, the State must intervene.

Chapter VIII. deals with questions relating to

Live Stock.

1. *The reduction in the number of pigs and milch cows*.—“One thing must under all circumstances be done—reduce the number of beasts.” A great quantity of imported fodder is lacking, especially barley, maize, bran, and oil-cake. So far these have partly been used for feeding pigs, partly for increasing the yield of cows' milk beyond what could be attained with home fodder. We should only add to our deficit if we were to replace this fodder with material such as corn, which could be used directly for human food, for, passed through an animal, more than half the nutritive value is lost. In addition we are obliged to deprive the cattle of some of the foodstuffs suitable for human food with which they have hitherto been fed. The Government has therefore forbidden under penalty the use of bread corn as fodder, amounting in rye alone to 2,000,000 tons yearly. We must in future divide the available fodder among a smaller number of beasts, for it is in general more advantageous to feed a small number abundantly than a larger number sparingly. The mere limitation of the number amongst which a given amount of fodder is divided makes it possible to produce more human food for the same consumption of fodder, and therewith further limiting our deficit. The necessary reduction of the number of beasts demands, on the one hand, a slaughtering of a certain proportion, and on the other a limitation in the production and breeding. It will be readily understood that the thought of such a reduction will be very sore to the heart of many of the farmers who have attained a large stock with years of hard labour, but there is no place for sentiment in the present fight for existence. Only we must see to it that the diminution does not damage the future of the industry, and that on the return of peace the breeding can be resumed in the necessary intensity. These questions are not simple of solution, the first being in what kind of animal the diminution shall be made. Here two points must be considered, the first concerning the kind of fodder. In general the reduction should be made among the

beasts who consume fodder which could directly serve for the food of man. The pig is the greatest food competitor of man. The second point concerns the best employment of the fodder. We should rather destroy such beasts as do not put the fodder to an economical use. In this respect the varying production of meat and milk is of special interest. The experiments of Kellner and König have led to the following results. In the feeding of a pig of 15 kilos. up to a weight of 120 kilos. 24 per cent. of proteid and 44 per cent. of total food value is retained for the nutrition of man. On the other hand, in rearing a calf from 30 kilos. up to a weight of 360 kilos. only 20 per cent. of proteid and 14 per cent. of total food value is available. A milch cow weighing 500 kilos. and giving in the year 2200 litres of milk gives back to man 36 per cent. of the proteid and 24 per cent. of the total food value with which it is supplied. The different value of the products must also be considered. With milk at 20 pf. (= nearly 2½d.) the litre and pork at 2 marks (or shillings) a kilo., we pay for 100 grammes of proteid 57 pf. in the case of milk and 1 mark in the case of pork; and apart from proteid the milk contains far more nutriment than the pork. In proteid economy, therefore, the milch cow is far to be preferred to the pig or the calf. Hence the cow should be retained as far as possible and only the wasteful feeders destroyed. If the question of the economical employment of fodder were the only one, then the bullocks should principally be destroyed. But since the kind of fodder is of still greater importance the limitation of pigs is the first to be undertaken.

2. *The degree of the limitation of the number of beasts.*—The reasons making the limitation necessary are the lack of imported fodder and the prohibition of the employment of bread corn. Both necessitate a diminution, since it would be indefensible to maintain the present number with insufficient and therefore unproductive feeding. Two methods are available to determine the necessary reduction. In considering the measures for the whole country the calculation can best be made from the quantity of fodder which is no longer available, whereas for any particular district or farm the calculation must of necessity be made on the actual figures of fodder still available. First, then, let us consider in what degree in general the number of cattle must be reduced. The missing fodder was principally used for two purposes: for the feeding of pigs and the keeping of milch cows. Roughly, we may assume that barley and maize were given to the pigs and the other fodder to the cows. On this basis we may reckon that pigs were fattened on the excess of imported barley and maize as far as this served for fodder at all. On the average of 1912-13 2.9 million tons were available with a proteid content of 240,000 tons. To see how many pigs this amount could have fattened it is not possible to calculate simply from the physiological fact that a pig in order to increase from 15 to 120 kilos. in nine months requires fodder of 1.4 million calories, equivalent to 493 kilos. of barley or 411 kilos. of maize; for this calculation does not allow for loss on transport and storing, for waste in feeding, for digestive disturbances and disease, and death during fattening. It is better to reckon as the practical farmer does that a pig puts on a kilo. of weight for 5 kilos. of corn (5½ kilos. of barley and correspondingly less of maize). If the fattening of a pig is expressed in this way in corn value, 525 kilos. (or 575 kilos. of barley) would be necessary, giving roughly 5½ millions of fattened pigs, or somewhat more than a fifth of the last census. The reduction should specially be made in the pig-fattening establishments of the province of Hanover. For milk production we should have—on our basis of calculation—to allow for the lack of import of fodder, as well as the home rye which is no longer available for animals. The import reckoned in proteid value amounted in 1912-13 to 664,000 tons, the home-grown rye to 192,000, of which only the bran (some 50,000) is now available. The total deficit for milk production is therefore 806,000 tons of proteid. Now, a cow gives on an average 2200 litres of milk in the year, and requires as fodder for its own needs on the usual calculation 350 grammes daily, or 128 kilos. yearly, of proteid, and in addition as fodder for the production of milk 70 grammes for each litre, or 154 kilos. in the year. Adding these together, each cow requires 282 kilos. proteid per year. 806,000 tons of proteid content in the rye no longer available would have served to feed 2.86 millions of milch cows, or

some 27 per cent. of the whole head of cattle. This calculation, however, gives only a provisional picture, for the entirely incorrect assumption has been made that farming methods would continue as heretofore. This must not be allowed to occur. Fodder must be economised and new sources utilised; suitable additional fodder plants are to be cultivated, useless cattle got rid of, the waste of raw fodder avoided, and the cattle treated according to their individual needs. It has been calculated that with economy of the use of fodder in every possible direction a saving might be effected, so that only 2 million cows need be got rid of. But this is without allowing for a limitation in the keeping of pigs, and, as we have seen, the proteid of fodder is obtained in almost twice the quantity in milk that it is in the production of pork. For every three and a half pigs destroyed one cow may be retained, and we may accordingly compromise by reducing the number of pigs by 9 millions, the milch cows by only 1 million, respectively 35 per cent. and 10 per cent. of the whole.

3. *The carrying out of the reduction.*—In different parts of the country different conditions as regards fodder prevail. In any case those cows should be slaughtered in which the milk production is less advantageous, and even then not all at the same time, to avoid a temporary excess of meat at a low price and an eventual meat famine. The State should here again step in to buy and preserve the surplus meat, and a minimum price should also be fixed. As regards the production of pigs, so long as the skim and butter-milk cannot be otherwise employed they should be retained, and for the present the potato harvest cannot be otherwise utilised, especially since the slaughter will be a successive one and the feeding of young pigs must in any case not be too scanty in order that they may remain capable of adequate fattening.

4. *Small livestock.*—The proposal has been made to extend as far as possible the keeping of fowls and rabbits, thereby producing a more varied and agreeable diet, which would be of practical importance with foreign production entirely cut off. But although for years fowl-keeping has been encouraged, in the first half of the present year over 106 million marks' worth of eggs were imported into Germany, and this condition is hardly likely to alter rapidly. The rearing of chickens also involves foodstuffs which might serve directly for human consumption, and the question is in fact only a practical one where the fowls can run free in the farm and on the fields and feed on insects, worms, plants, &c., which otherwise would remain unused. The amount of care and attention required would often be prohibitive, especially when so large a proportion of the population is on military service. But wherever possible the keeping of fowls should be borne in mind.

5. *Increased production of fodder.*—The leaves of beet and potatoes if carefully harvested and preserved afford useful fodder, and a great part of the green stuff which is usually ploughed in may also be used as well as crops grown in the between-time of the principal crops, such as Chinese radish, white mustard, peas, &c. These measures were already recommended at the beginning of the war by the Agricultural Society and by experienced farmers.

Chapter IX. deals with

The Proper Utilisation of Agricultural Products.

1. *Corn and potatoes.*—Much can be done to cover our deficit by employing grain and potatoes to proper advantage. They belong together because they are commonly employed for the same purpose, whether for human nourishment, fodder, preparation of starch, or brewing. At present both are largely employed for feeding domestic animals, and this is not so questionable in the case of potatoes, of which we have a large excess. Of grain hitherto, not merely the residual grain—i.e., the part cast aside with the impurities on sifting—has been employed, but also some proportion impossible to estimate even of good grain among the smaller farmers. Such grain, employed indirectly for human nourishment through an animal, loses at least 50 per cent. of its food value. 1.4 million tons of corn are lacking, and in these circumstances the use for fodder must be limited to a minimum. The Government indeed on Oct. 28th, 1914, forbade its use on principle. "For every farmer it must be a matter of honour to observe this prohibition in the interest of the protection of his country." Fortunately a substitute can be found. More potatoes can be used, especially when by means of potato-drying large

quantities are preserved from rotting. Beet parings can also be used. These substitutes can gradually take the place of the usual rye.

Considerable quantities of grain and potatoes are lost for human food by their use in trade. Even if the substitutes produced are used for food a certain loss is inevitable—in the processes of starch-making and brewing—apart from the starch and spirit which are used for trade purposes. These uses must be carefully inspected. Starch is partly used in the kitchen for baking, partly for technical purposes, and is produced both from grain and potatoes. In the year 1911, 34,000 tons of rice, 25,000 tons of maize, and 23,000 tons of wheat flour were used. The two former are no longer available; hence there is a risk of wheat flour being used in their place. In preparing starch from corn the proteid content is lost, or has at all events not yet found adequate employment (so-called aleuronat has had no great success). For all purposes, whether of food or industry, wheat starch may be replaced by potato starch, which has the great advantage of not wasting any large proteid content. In 1910-11, 1.3 million tons of potatoes were used for starch, with the obvious advantage of producing a foodstuff capable of indefinite keeping, bearing in mind that the best form of preserving potatoes—viz., drying—is not possible for the whole quantity. The production of potato starch, if it is used for human food, is therefore free from drawback. If used for bread the proteid content of the latter will be diminished, and its place must be taken by adding skim milk. Zuntz and Magnus Levy have shown that such bread is well digested. Technical application of starch, on the other hand, must be limited. The employment for linen has no real use, and some ingenious person should discover a substitute for paperhanger's paste.

For the production of alcohol both grain and potatoes are used. In the years 1912-13, 3,000,000 tons of alcohol were manufactured. About half is drunk; the other half is used for various technical purposes. 89,000 tons of rye were used in the production of malt spirit. This employment is highly questionable, and the production of spirit from corn should be entirely forbidden. Of potatoes in the years 1912-13, 2.7 million tons were used in the distilleries. Against the use of potato spirit as a beverage the reduction of food value is not as great as might be supposed. 60 per cent. of the energy remains in the form of alcohol, 3 per cent. is lost in the vital process of the yeast, and the remaining 37 per cent. forms a useful fodder, of which in its turn one-third is later available in the form of meat and fat. Potatoes used directly for cooking as a rule lose 15 per cent. in peeling and 2 per cent. in imperfect digestion. Hence, *quâ* food value there is not much against the distillery. But in spite of this the use of alcohol should be limited as much as possible, as it is a poison and a danger to the health of the individual as well as to that of the community. Other considerations affect the part of the alcohol used for technical purposes. It is entirely lost as food, with the exception of the small residue for fodder. The use of alcohol for motor driving is an evil which cannot be altogether avoided, although it should be limited as far as possible. As an illuminant gas, acetylene, or electricity must take its place. Its use to replace benzine and petroleum is, to some extent, unavoidable, and any reduction in the production of alcohol from potatoes can hardly be expected. For brewing grain alone is employed, and in the form of beer our population enjoys more alcohol than in the form of spirit. In the years 1912-13 3.5 kilos. of alcohol yearly per head of population were consumed in the form of beer, and 2.2 kilos. in the form of spirit. Some 1.7 million tons of barley served for this purpose, and the question whether limitation is desirable is affected by the fact that barley ordinarily is very little used for human food. In brewing the nutritive value is fairly well maintained and an average loss of 12 per cent. may be reckoned with in malting and a further loss of 25 per cent. in extracting from the malt is compensated by the value of the remainder as fodder. A further 2 per cent. is lost in the vital process of the yeast, which itself, however, serves a useful purpose in baking. Hence, some 60 per cent. of the energy of the barley is retained for man in beer. Even in the production of pearl barley some 40 per cent. of food value is also lost.

The most important employment of grain is naturally the production of bread, and since the import of wheat

and the export of rye both have ceased it is necessary to mix rye flour with wheat, and an edict on Oct. 28th made an admixture of at least 10 per cent. of rye flour obligatory. To raise the price of wheat flour as a further inducement to saving would have the undesirable result of limiting the use of wheat flour to the well-to-do. The necessary regulation is gradually coming about and bakers should be encouraged to make the small rolls out of rye flour. The question is, further, of great importance whether the quantity of bread can be increased by a large addition of bran, bran being the part of the outer husk of corn separated in the grinding, and containing much proteid but in an indigestible cellulose envelope. Wholemeal contains the whole of the bran, the finest wheat flour about 60 per cent. of the total weight. Between these two extremes it is possible to manufacture a bread containing 70, 80, or 90 per cent. of the total weight. The separated bran, if employed for human consumption through an animal, loses at least 50 per cent. of its total value. On the other hand, if the whole of the bran is employed the resulting bread is not so perfectly digested—as, for instance, in the well-known pumpernickel. These considerations influenced the edict of Oct. 28th, according to which rye flour must contain at least 72 per cent. and wheat flour at least 75 per cent. of the total weight. The much-discussed question whether potato bread—i.e., bread with addition of potato flour—is advisable or not was settled also by the same edict, which prescribed an obligatory addition of 5 per cent. of potato flour to rye bread. A larger addition is permissible, but the bread must then bear the letter K (Kartoffel); if more than 20 per cent. the percentage must be stated on the bread. The production of potato bread is not necessitated by the lack of corn, but because grain is more easily stored than potatoes. On principle, however, it is doubtful whether the composition of a staple article of diet like bread should be altered after centuries of constant use, and when many people cover the whole of their proteid requirement in the form of bread. Potatoes contain less than one-fifth part of the proteid of rye flour. The addition of 5 per cent. is free from objection; more than 20 per cent. is inadvisable, especially as, according to Hellsten's experiments, digestion is then less perfect. Moderate saving of food value might be attained by dispensing with yeast. The alcohol and carbonic acid lost in the fermenting of the dough amounts to some 2 per cent. of the food value. But the employment of baking powder or of mechanical means is technically very difficult.

The complete utilisation of potatoes is endangered by the fact that a part of their food value is lost by rotting during long storage. In a year some 4 million tons are wasted in this way. Much may be done by correct storage, and latterly the practice of drying has helped considerably. In one form whole potatoes are cut into slices and dried in an oven, the resulting material being used for fodder. In a second, potatoes are steamed, freed of their peel, and pressed between rollers into thin discs. Although mostly used for pigs, they are then quite suitable as human food. A special advantage is the reduction in weight for transport to about one-quarter. Unfortunately the existing apparatus working continuously can only dry some 2½ million tons during the present winter.

2. *Vegetables, fruit.*—A not inconsiderable increase in our food-supply can be reached by better utilisation of vegetables and fruit. The edible fungi should not be wasted, and for vegetables four methods of keeping come into question: storage, pickling, drying, and preserving. Cabbages especially, instead of being sold almost for nothing in the autumn, should be stored in frost-free rooms which the local authorities and coöperative unions should provide. There is a larger field for the production of sauerkraut and the pickling of beetroots. The drying of vegetables is more complicated, but more might be done in this way as well as by sterilising in tins and glasses, which is, however, both expensive and complicated. Especially in individual households much can be done. The same applies to fruit. Home-grown garden fruits have by no means been used to full advantage, and there has specially been a lack of an organised market for windfalls and the cheaper kinds of fruit which have generally been given to pigs. The wild fruits—bilberries, blackberries, hips, elderberries, &c.—should not be imported but diligently collected in our own country, and a market organised for this purpose.

Preserving with sugar is most desirable, as in this way an increased employment of home-grown sugar would result. As an addition to a dish of cereals and potatoes they will serve greatly to limit the consumption of meat.

3. *Sugar*.—An attempt must be made to utilise properly the million or so tons of sugar which will no longer be exported. First and foremost is its employment to preserve fruit, and the transport tariff to the manufactories should be correspondingly reduced. It is clear that even after the war English markets for our sugar are by no means assured. The surplus may be employed as fodder, and especially to make palatable to the beasts forms of fodder which would not otherwise be so, especially the beet parings, and also straw, chaff, &c. The sugar would mostly be in the form of molasses, the residual non-crystallisable remains from the manufactory. Whole beetroot cannot in large quantity be given safely as fodder, and for 1000 kilos. of milch cow it is only advisable to feed some 10 kilos. of beet, for cattle 15 kilos., for horses 8 kilos., and for sheep 25 kilos. Their employment is safest for pigs, but their use should not then exceed 25 kilos. for 1000 kilos. of living weight, and it must be borne in mind that extra proteid must also be given. As beets are heavy they can only be given within short distances of where grown, and in any case the economy of the 300 odd sugar manufactories which employ a large number of workmen should not be seriously interfered with. In some factories already some 20 per cent. of the sugar is left in the peeling, which then forms a simple and economical fodder.

4. *Milk*.—Milk is a product which if carefully utilised, will form a considerable gain in our food-supply. Before the war annually some 20 milliard litres of cows' milk were produced, not allowing for what the calves themselves took. A reduction of 10 per cent. in the head of stock has been contemplated, with a corresponding reduction of about 18 milliard litres. At the present time two-fifths are used directly as full milk, a small part made into cheese, and more than half into butter. A considerable loss of food value occurs in the latter process. The whole content of carbohydrates and proteid goes into the skim and butter milk and the whole of the fat into butter. The figures for milk are roughly 3.5 per cent. fat, 3.2 per cent. proteid, 4.8 per cent. carbohydrate; and since the fat is double as rich in calories as the other constituents, the larger part of the energy-content is found in the butter. Nearly the whole of the body-building material is found in the skim milk. On present lines 8 or 9 milliard litres of skim milk are produced, and it is clear that this may have an enormous application in covering our proteid requirements. Unfortunately at present skim milk is only used in small proportion for home consumption. Its only large employment is to make skim cheese, whether curd or in more permanent form. A further proportion is used in margarine fabrication, where only a portion of its food value remains in the margarine, the rest going for pig fodder. As a drink both skim milk and butter milk are used very little, and in the raw state it is especially prone to carry tubercle bacilli and should only be used in a pasteurised or sterilised condition. But in cooking, where it might be largely employed, it is at present little in vogue. This is partly owing to the excessive consumption of meat and to ignorance on the part of the housewife of the use of skim milk, and also to its relatively high price. In consequence of this at present the skim milk is yearly to the extent of 5 milliard litres given to pigs, entailing, as we have seen, a reduction of at least 50 per cent. in its nutritive value. Careful instruction in its use should be given to housewives, the railway must assist by low tariff, and the price fixed at less than one-half of that of full milk. Further propaganda should be made for the larger employment of cheese both taken alone and as an addition to other foods, thereby saving the consumption of meat. But the third and most efficient means for preventing the loss of nutritive value, at present due to skim milk, is the limiting of the production of cream and butter corresponding at least to the reduction of 10 per cent. of the total quantity of milk. On the other hand, the proportion of full cheese should be, if possible, extended. Its value as an article of food is considerably higher than that of butter, and it has the advantage of greater permanence and easier transit. As the desirable consumption of full milk can hardly be increased it must be reserved as far as possible for the children. The matter may be summarised as

follows: "Full milk is to be retained in its present quantity, a production of cream and butter is to be limited, cheese is to be produced where possible in increased quantity. From the skim milk remaining after making butter, cheese (curds and skim) is to be made as far as possible, and the direct use of skim milk is also to be encouraged by propaganda and by cheap prices."

5. *Meat, fat*.—We must reckon with the fact that in the immediate future the number of pigs must be reduced by one-third and that of milch cows by one-tenth. In consequence of this the amount of meat on the market will immediately be increased, and if this is not to be followed by a subsequent meat famine immediate measures must be taken. The slaughtering must not be done all at the same time, and full advantage must be taken of the use of cold storage, smoking, pickling, and the production of *dauerwurst*. It would be especially advisable for the farmers themselves to prepare, as in old time, their own hams and bacons. If necessary the local authorities and the State must step in and buy up and preserve all the superfluous meat. The use of fat for technical purposes must be limited as far as possible. The employment for soap manufacture of fats, which could be used for human consumption, must be forbidden by the State. The soap manufactories can use the effluents of towns, as is already to some extent being done, and a house-to-house collection of waste fat is also possible. The addition to soap of substances which clean mechanically is also to be considered. Apart from soap, other industries must forego entirely the use of such fats.

Chapter X. considers

The Necessary Alteration in Habits of Life.

1. *More vegetable food*.—Even an isolated Germany can cover its requirements in foodstuffs, but to do so without too much limitation various adaptations must occur both in our agricultural production and in the proper utilisation thereof. Production and trade doing their part a moral duty rests with the consumer to do his, and to demand those foodstuffs, such as rye flour, sugar, and skim milk, which are at present in excess. The consumer, therefore, is entrusted with the great task of defeating the English starvation plan. The most pressing alteration demanded is to diminish the consumption of proteid and fat in comparison with that of carbohydrates, approaching more the habit of the country dweller, especially in South Germany. In wide circles, especially in towns, proteid has been consumed in excess in the form of meat, and we must reckon with the meat-supply becoming short after an initial glut. This reduction in itself is not an evil. The consumption of meat has increased enormously during the nineteenth century, as the following table, giving the relative consumption per head of population, shows:—

Year.	Kilos.	Year.	Kilos.	Year.	Kilos.	Year.	Kilos.
1816	13.6	1861	23.2	1883	29.3	1900	43.4
1840	21.6	1873	29.5	1892	32.5	1907	46.2

In the last ten years the consumption of meat has remained about the same, although it doubled during the previous 50 years. We can return to the habits of our forefathers in this matter without concern, and in so doing become healthier and live more cheaply. Fat also in the large towns has been used very abundantly in the form of bacon, lard, dripping, margarine, butter, and cream. Since in the rôle of nutrition it differs only from carbohydrates in a larger heating value—40 grammes of fat corresponding to 90 grs. of carbohydrate—we have only to replace this use of fat by more carbohydrates, such as bread, puddings, soups of various kinds, potatoes, sugar, &c., and this can and must be done. Fat will soon fail. The foreign animal fats—e.g., American lard and Siberian butter—are wanting, and also the fodder with which we have heretofore produced the home animal fats, especially oilcake, barley, and maize. We also lack the foreign vegetable fats which serve for artificial butter. An increased production of linseed oil and new sources, as, for instance, beech nuts and sunflower seeds, may help a little but not seriously affect the problem. Such a high consumption of fat is, however, as unhealthy as it is uneconomical. In contrast to most carbohydrates the pure fats are poor in other materials, especially in salts; and, by reason of their difficult digestion and lack of tempting flavour excite the consumption of alcohol, and are therefore hygienically questionable. Economically they are wasteful, as so much is lost on plates and dishes after becoming cold, as is shown by

Rubner's observation that 100 grammes a day are thrown away in Berlin per family. We must therefore use less fat and more carbohydrate, and since the animal foodstuffs contain more of the former and vegetable more of the latter the necessity arises of living more on vegetable substances. This is not a recommendation to pure vegetarianism. To give up animal food altogether would be economically a mistake, as the beasts consume stuffs unsuited for human food—e.g., hay, straw, greenstuff, acorns, beet parings, &c.—and these can only be made suitable for human food by being employed as fodder. We should only return to the habit of former times in which vegetarianism had no meaning, because the employment of meat and fat had not then reached such a high level. In a large part of South Germany the carbohydrates still form the principal part of the diet, and the necessary alteration for North and Central Germany consists in introducing South German dishes. The alteration should not be made too suddenly, and the State and local authorities should see to it that the prices of animal foodstuffs gradually rise, and so assist the gradual taking place of the change.

2. *Meat, fish; milk, cheese, skim milk; pulses.*—The body's need in building material—i.e., in proteid—will also be in part covered by the proteid content of bread, and in smaller degree of potatoes; and since these foods are taken for their carbohydrates in large quantities no inconsiderable amount of proteid is also taken. But to cover the whole proteid need excessive quantities of these would be required, and hence we do well to cover a part of our proteid requirement by foodstuffs containing a high proportion of proteid. There are three groups of these: (1) meat and fish; (2) milk and milk products; and (3) in the vegetable kingdom only the pulses.

The consumption of meat is very various in different parts of Germany. In some, especially in South Germany, little meat is taken—in the country for the most part only on Sundays, but in cities, and especially in the hotels and restaurants, the consumption is excessive. Excessive also is the so-called English breakfast, beginning the day with abundant quantities of meat, &c., and the employment of meat at the mid-morning lunch, to which even town children are accustomed. Wherever the employment has hitherto been within moderate limits it may be so continued. Meat remains to us permanently in various forms. In addition to beef, pork, and mutton, there is also available horse, game, poultry, rabbits, and, as fish may also be included under meat, both fresh water and salt fish, especially herrings, haddock, and cod. One of the cheapest sources of proteid is dried fish, and fortunately the herring catch of last year was a good one. Fish is especially useful in bringing variety into the diet of the poor. In hotels and restaurants part of the meat should be exchanged for fish, and for children meat is better replaced by milk and milk foods up to school years.

By far the most important substitutes for meat are milk, cheese, butter milk, and skim milk. Milk plays a special rôle among all foodstuffs, since, as the natural food of the young, it covers all that the body requires in each category of foodstuff. The consumption of butter should be limited, since it leads to a waste of skim milk used as fodder, and so to a large proteid loss. The consumption of full milk can hardly be increased, but should not be reduced; a certain redistribution should take place; employment for children instead of meat, skim milk taking the place of full milk for cooking. The consumption of cheese should be increased. Full cheese is, so to speak, concentrated milk, containing in convenient form practically all its valuable constituents, and it is more nourishing than moderately fat meat. It has the advantage over milk of appetising flavour, and for many people of greater digestibility. Milk costs in food value only about one-half of meat, and full cheese such as Tilsit, is cheaper even than milk on account of its convenient transport and keeping property. More important still is the production in future of skim cheese in larger quantities. As soon as the knowledge is general that with its proteid content and appetising flavour it is a cheap substitute for meat, bread and cheese will often take the place of bread and sausage. Unfortunately the use of curd cheese is limited. In contrast to full cheese, curd cheese has little flavour, but is on this account the more suitable for the preparation of breakfast and supper dishes even for children. It is especially suitable

for use in cakes and puddings, and already figures extensively in the South German and Austrian menu. Of great importance, too, is the use of skim milk to replace meat. As a beverage it has little vogue, but can often take the place of full milk in cooking and baking. In preparation of foods the taste is indistinguishable from that of full milk, and puddings are an excellent food for children and also for adults on days when meat is not taken. The greater employment of puddings, which by their content in skim milk, sugar, and flour replace fat, is not only a resource in time of urgent need, but a means of permanent importance for the nutrition of the people.

Lastly, as meat substitutes we have the vegetable products which are rich in proteid. Amongst these, far the most important are the pulses—peas, beans, and lentils. Their proteid content is equal to that of meat, but in consequence of the hard husk is much less digestible than that of meat or milk. But cooking can largely remedy this, especially in the case of peas, and they are therefore a cheap substitute for meat and should continue in use even with a rise of price. Nuts, chestnuts, and fungi, although rich in proteid, are of much less importance on account of their hard envelope.

3. *Bread, porridge, puddings, potatoes, vegetables.*—The body's need in energy-producers can just as well be covered by proteid and fat as by carbohydrate, but since we have to reckon in the future with a certain lack of the former, we must largely cover our need with the latter, and here starch-containing foodstuffs have the chief place—bread and other products of flour, potatoes, and vegetables. Taking bread first, the important matter is to add more rye and less wheat. Two million tons of foreign wheat have fallen out, and home-grown rye is available to take its place. This is an easy adaptation, since there is no good ground for preferring wheat bread to rye bread. The latter has hitherto been baked chiefly in large loaves, but is equally suitable for rolls. Fine rye flour without bran is also available. The Government has already ordained that flour must contain a certain proportion of bran (rye flour 72 per cent. of the whole, wheat flour 75 per cent. of the total weight of the grain), and this can be increased somewhat with advantage. If rolls of rye flour are demanded the baker will undoubtedly make them. Rye flour may also be used with advantage in the form of macaroni, groats, semolina, porridge, &c. These do not lead to the addition of fat to the same extent as bread does, and are therefore specially useful under present conditions, and the addition of skim milk and sugar greatly increases their nutritive value. Especially for children they have great application, and can in this way spare for adults the meat and fat rations to which they have been accustomed, although for the latter also reduced meat consumption is advisable. In South German and Austrian menus they already play a large rôle at breakfast and supper, with the addition or not of a little egg. Of potatoes we now consume some 14 million tons in the whole of Germany yearly, and employ about double the quantity for other purposes. In South Germany the consumption of potatoes can be greatly increased with advantage. The great loss on peeling, amounting to some 15 per cent., or yearly to 2 million tons, should be avoided. To avoid this potatoes should be boiled first and peeled afterwards. The taste of peel so resulting can be avoided by dropping the peeled potatoes into boiling salt water for three minutes. When peeled raw the patent peeler should be used, and dried potato chips have considerable application. Potatoes should be employed in greater variety, not merely boiled or as salad but in the form of dishes with the addition of a little meat or fish, or with cabbage, fruit, &c. A special place is occupied by vegetables. The chief value of bread, puddings, &c., lies in their starch content. Vegetables also contain a certain quantity of starch, some also a little proteid, but their value in nutrition is chiefly due to other constituents. The mineral stuffs, especially chalk and iron, are of some value, but their chief use is as appetisers on account of their varied and agreeable taste, thus making more change possible in the diet, especially when this contains a large quantity of potatoes, and in so doing they further limit employment of fat.

4. *Fruits, sugar.*—The second kind of carbohydrates which must help us to cover the supply of energy-producers we find in the sugar-containing foods, especially in fruits and in the sugar which is obtained from beets. Fruits play a similar rôle to that of vegetables, although the sugar

content is 15 per cent. in grapes, 8 per cent in apples, but only 2 per cent. in whortleberries. Fresh fruits have the objection of not keeping, and preserving makes it possible to utilise the less valuable kinds and to store and transport them. The use of sugar must be largely increased, bearing in mind that in England and America it is twice as much per head of population as with us. In those countries preserves are largely used where we use butter. Exact investigations have shown that taking of some 12 to 15 grammes of sugar in half-hourly intervals can remove the sense of fatigue in very large measure. Hence, sugar in various forms should be part of the consignments to the troops in the field. The frequent assumption that the use of dry sugar produces thirst is incorrect; on the contrary, it produces increased salivation, and thereby moistens the mouth. The production of thirst is unthinkable, because in the oxidation of sugar in the body almost two-thirds of its weight of water is formed. No large amount of raw sugar can be taken, but it can be made up into cheap fruit preserves and various forms of cakes and sweet dishes and as an addition to soured milk. Sugar added to tea and coffee is no luxury, but makes these drinks nutritious. It must be borne in mind that sugar is not merely a sweetmeat but weight for weight equivalent as a foodstuff to fine flour.

5. *Household economy.*—"Much should be otherwise in our nutrition. Vegetable food must take a larger place. At the midday meal the meat dishes should be placed in the background and various valuable puddings take their place. But it is a question not only of an alteration of the chief meals, but also of much else. Rolls should be confined to breakfast; at dinner and supper large loaves of rye flour or rye and wheat flour. The widespread but senseless luxury of eating bread between meals with a layer of fat should be given up. Bread alone is sufficient, or bread with fruit or marmalade. With fat dishes such as cheese or ham, buttered bread is entirely unnecessary." With the alterations recommended, our diet will not be monotonous but more varied. In many circles the present menu is poor in variety and it is only to be wished that particular dishes at present not enough valued should be introduced. The housewife must take care that the alteration of the diet should not produce disgust. Newly introduced sweet dishes should alternate with the more usual salt or acid ones, and excessive zeal may do great harm and only produce the effect of a hurried return to the old unsatisfactory diet. An important item is the home production of articles of diet. Even a small piece of garden can cover part of the requirements in potatoes and vegetables, and the keeping of animals must be considered. Pigs, goats, rabbits, and hens make it possible to use all the kitchen refuse, such as potatoes and withered vegetables. In most cases it will be possible to pickle and smoke meat and to preserve vegetables and fruit. Correct marketing must be practised everywhere. Where necessary articles such as skim milk, fruit, cheese, and rye rolls are not offered in sufficient quantity, they should be repeatedly demanded, so that demand may call forth supply. In general it is not advisable to store food, apart from some pickles and smoked meat, as well as preserved fruits and vegetables.

Finally, care must be taken that no waste occurs, as has been too much the case in all classes of society. Among the well-to-do too much has been eaten. Superfluous nourishment is partially undigested and floods the body to the detriment of health. But apart from this much goes bad both in the kitchen and on the table, and the value of refuse has been little recognised. All meat and fish scraps should be carefully utilised. They can be boiled and employed to flavour soups and vegetables. The remains of fats and sauces especially should be kept, as well as those of bread and potatoes. Waste of food may also occur in the use of spirit, starch, and soap, for the two former are made from grain and potatoes, while the latter is chiefly produced from useful fat. The spirit producers have recently pointed out that with the shortage of petroleum, spirit is a useful substitute. This is correct, but we should make as little use as possible of the substitute, since as spirit is produced from potatoes the burning of spirit is equal to the burning of potatoes. Wherever other illumination is available spirit should not be used. The same applies to starch, which is produced from potatoes, for although in the case of linen its use can hardly be avoided, for other articles of dress it should be given up entirely, as it is not only uncomfortable, but prevents the passage of air and is actually unhealthy.

In a time in which it is necessary to economise our food-supply it is stupid to persist in so doubtful a fashion. Finally, in the washing of clothes soap should be sparingly used, especially as hard water wastes it in large measure. For one degree of hardness—i.e., 10 milligrammes of chalk in the litre of water—denotes for a hectolitre of water a loss of 10 grammes of the usual commercial soap. In a hard water, such as that of the Jura, the loss may amount to 350 grammes or more of soap for a hectolitre. In these regions it is advisable to use rain water, or, if this is impossible, to soften the water previously with soda, chlorine compounds, or perborates. Some saving of nutritive value is possible by the preparation of food in quantity, but, in general, cooking at home is both better and more economical. The self-cooker may render additional assistance. Where the housewife has to work outside the house a people's kitchen may then serve a useful purpose.

The Covering of the Deficit.

Chapter XI. treats of results, and contains the following interesting summary:—

Nutritive values.	Proteid in thousands of tons.	Calories in milliards.
Physiological requirement	1605.0	56750.0
Actual use before the war	2307.0	90420.0
Available if the present conditions remain unaltered... ..	1543.0	67860.0
To add: Alteration of cattle-keeping	217.3	2878.0
Avoidance of waste	80.0	5675.0
Prohibition of corn as fodder	78.3	2741.0
Increased use of skim milk and skim cheese	48.8	250.9
Potato-drying	18.9	1112.3
Limitation of butter production	14.8	110.4
Cultivation of moors	10.4	592.0
Prohibition of the production of alcohol from corn	4.7	68.6
Preserving of vegetables	3.6	93.0
Preserving of fruit	1.7	147.5
Prohibition of the production of wheat-starch	1.3	5.2
To subtract: Sugar used as fodder... ..	—	— 283.1
Available if the means recommended are carried out	2022.8	81250.8

"We see that the efficacy of the means recommended is great. The available amount of foodstuffs rises very considerably, the number of calories by 20 per cent., the proteid by 30 per cent. Our needs are covered also in regard to proteid, and in so large a degree that the losses involved in transit are covered. The available calories exceed our needs by 44 per cent., the available proteid by 26 per cent. Naturally it is inconceivable that without imports the same amount of nutritive value should be available as before the war, but an approach to this amount is obtained in calories, wanting instead of 25 per cent. only 11 per cent., in proteid instead of 33 per cent. only 13 per cent. of what was available before.

"This favourable result applies not only for the moment but permanently, even if the war should last for years. It has intentionally been left out of consideration what might cover our immediate needs, but is not assured for longer—both our reserve stores and our imports from neutral States. Indeed, the possibility has been reckoned with that during the war our production in food values may be still further diminished by bad harvests and other causes.

"The favourable result has not been assumed with thoughtless optimism, but has been worked out with gravity and foresight. In reckoning our requirement and our sources of help they have been assumed in general to be too low rather than too high. The requirement of the individual has been fixed as if the whole population were well whereas we have numerous sick people with reduced needs. For the needs of the whole people a census of 68 millions has been assumed, although the greater part of the army is on hostile land. Of the means for producing food-values there are many which cannot be expressed in figures—as, for instance, the internal colonisation, the increased cultivation

of pulses, the extended keeping of small animals—and for the remainder the smallest amount has always been worked out and stated.

"The whole favourable result naturally assumes that what is here demanded will actually happen, that the Government permit no export of foodstuffs, that the local authorities carry out strictly the prohibition of corn as fodder, and that the farmer sees that the head of swine are reduced by 9 millions, the head of milch-cows by 1 million, that the waste of fodder as well as of foodstuffs shall cease in our households, that a sufficient number of prisoners of war can be had for the culture of moors, and so on. But this assumption will be fulfilled.

"We shall come through. That we can do so we owe to our agriculture, under the mighty protection of our rulers, who with clear sight recognised the danger of a one-sided development of Germany into an industrial state, and with the able coöperation of prominent men it has in the last decades undergone a tremendous increase; to its own benefit, and with the gratifying result that we are in a position, in case of need, to nourish on an area of little more than half a million square kilometres 68 millions of human beings without import from abroad. To the healthy adaptability of our economical life we are also greatly indebted. As the individual adapts himself the more easily to a change in outside circumstances the better his nervous system reacts; so also the national economy shows a greater adaptive power, the more nervous force works in it in the form of strong, intelligent, thoroughly sound personalities. The richness of Germany in such personalities has shown itself since the outbreak of the war in surprising manner. But before all must we be thankful for two qualities of our national character, which perhaps we have not always sufficiently prized—viz., clearness and persistence. On these the authors of this work build, when they cherish the conviction that, spite of closed frontiers and suppression of sea trade, the English starvation plan will founder on the free working together of our millions."

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Temporary Surgeons: A. McMillan to the *Egmont*; A. E. Iles to the *Victory*, additional, for Haslar Hospital; H. P. Margetts to the *Victory*, additional, for disposal; and W. E. Fox to the *Laurentic*.

ROYAL NAVAL RESERVE.

The undermentioned have been granted temporary Commissions as Surgeons in His Majesty's Fleet: Frederick Harold Rees and Stanley Worthington.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Charles Samuel Brewer to be Honorary Staff Surgeon (dated Feb. 11th).

Staff Surgeon: A. R. Brailey has been appointed to the *Victory*, additional, for Haslar Hospital.

ARMY MEDICAL SERVICE.

Colonel James M. Irwin is retained on the Active List under Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary (dated Feb. 13th).

Major Henry M. W. Gray, Royal Army Medical Corps, Territorial Force, to be temporary Colonel (dated Feb. 1st).

ROYAL ARMY MEDICAL CORPS.

Major John M. Buist is placed temporarily on the Half-pay List on account of ill-health (dated Feb. 6th).

Temporary Captain George E. Miles to be temporary Major (dated Feb. 17th).

Temporary Lieutenant William Anderson, having ceased to serve with the British Red Cross Hospital, Netley, relinquishes his commission (dated Feb. 2nd).

The undermentioned to be temporary Captains:—Dated Jan. 21st: John Curtis Webb. Dated Jan. 23rd: John Joseph Esmonde.

Lieutenant Cecil Corbin relinquishes his temporary commission (dated Feb. 7th).

Lieutenant Charles E. Reckitt relinquishes his temporary commission (dated Feb. 1st).

Mervyn Henry Gordon is granted temporarily the honorary rank of Major (dated Feb. 2nd).

Supernumerary Captain Travis C. Lucas is restored to the establishment (dated Jan. 5th).

Lieutenant Arthur A. Martin relinquishes his temporary commission (dated Feb. 2nd).

Temporary Lieutenant Kenneth William Mackenzie, late Captain, Indian Medical Service, to be temporary Captain (dated Feb. 16th).

Temporary Lieutenant Norman W. Anderson relinquishes his commission (dated Feb. 16th).

The undermentioned to be temporary Lieutenants:—Dated Jan. 21st: Ulick Joseph Bourke and Horace Nathaniel Everard. Dated Jan. 22nd: Bertram Henry Barton and George Flett Barr. Dated Jan. 24th: Peter Hay MacDonald. Dated Jan. 25th: Thomas Henry Brown, John Ellison, Charles Leslie Wigan, John Charles Robb, William Samuel Heron, George McCallum, Roger MacGrath, Cedric Norman Vaisey, and Leslie Alexander Drake. Dated Jan. 26th: Thomas Reginald Trounce, Martin Phillips Thomas, George Michael De Vines, Henry Joseph Cotter, and Thomas Small Goodwin. Dated Jan. 27th: John Stuart Prentice and William John Alexander Bruce Wishart.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.

Lieutenant James F. Quigley resigns his commission.

TERRITORIAL FORCE.

Royal Army Medical Corps.

The undermentioned to be Lieutenants (on probation); Stanley Burrough King and Second Lieutenant Owen Parry-Jones from General Reserve of Officers.

1st East Anglian Field Ambulance: Hugh Frederick Gethin Hall to be Lieutenant.

3rd London General Hospital: Alfred Hope Gosse to be Lieutenant.

4th Scottish General Hospital: William Archibald Campbell to be Captain, whose services will be available on mobilisation.

3rd Southern General Hospital: Frank Gower Gardner to be Lieutenant.

Sanitary Service: Major Alfred Greenwood to be Lieutenant-Colonel (temporary); Major Francis E. Fremantle to be Lieutenant-Colonel (temporary); and George Henry Weston (late Lieutenant, 2nd Volunteer Battalion, Hampshire Regiment), to be Captain, whose services will be available on mobilisation.

1st South Midland Field Ambulance: Major William M. Sturrock to be Lieutenant-Colonel (temporary).

3rd North Midland Field Ambulance: James Ernest Sutcliffe Smith to be Lieutenant.

1st Northern General Hospital: Captain William T. Harkness, from the Northumbrian Casualty Clearing Station, to be Captain.

Eastern Mounted Brigade Field Ambulance: Kenneth Bleckly Clarke to be Lieutenant.

1st East Anglian Field Ambulance: Ambrose Cyril Wilson to be Lieutenant.

2nd Home Counties Field Ambulance: George Mortimer McGilivray to be Lieutenant.

1st East Lancashire Field Ambulance: Gilbert Bailey to be Lieutenant.

1st West Lancashire Field Ambulance: Captain John E. W. McFall to be Major (temporary).

1st Northumbrian Field Ambulance: Home Alexander Playfair Robertson to be Lieutenant.

1st Welsh Field Ambulance: Major John Howard-Jones to be Lieutenant-Colonel (temporary). Captain John O'Sullivan to be Major (temporary).

2nd Welsh Field Ambulance: To be Lieutenants: David Thomas Lewis and Thomas Peters Edwards.

1st Southern General Hospital: Ernest Cordley Bradford to be Lieutenant.

West Lancashire Casualty Clearing Station: Harry Driffeld Levick to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenant-Colonel and Honorary Surgeon-Colonel George Hollies resigns his commission on account of ill-health. To be Majors: Major Peverell S. Hichens, from 1st Eastern General Hospital, and Captain James Aitken (temporary). To be Captains: Robert William Meikle (late Captain, Royal Army Medical Corps, Territorial Force) and Charles Stewart Young (late Surgeon-Captain, 3rd Volunteer Battalion, Royal Highlanders). Lieutenant Herbert W. Joyce resigns his commission on account of ill-health. To be Lieutenants: Gerald Francis Carr, Frederick William Arthur Stott, Arthur Henry Fullerton (late Lieutenant, 1st Volunteer Battalion, East Yorkshire Regiment), and Walter Smart.

ADMINISTRATIVE MEDICAL APPOINTMENTS IN INDIA.—Colonel C. E. Nicol, D.S.O., British Service, has been appointed to officiate as Assistant Director of Medical Services, 5th (Mhow) Division; and Lieutenant-Colonel G. G. Adams, R.A.M.C., has been appointed to officiate as Assistant Director of Medical Services, Jubbulpore and Jhansi Brigades.

Lieutenant-Colonel T. A. Granger, I.M.S., has been appointed Honorary Surgeon to H.E. the Viceroy of India.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8971 births and 6558 deaths were registered during the week ended Saturday, Feb. 13th. The annual rate of mortality in these towns, which had been 18.0, 19.2, and 20.1 per 1000 in the three preceding weeks, fell in the week under notice to 18.9 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 19.1, against 19.9 per 1000 in London. The annual death-rate last week ranged from 8.7 in Wimbledon, 10.9 in Bournemouth and in Smethwick, 11.3 in Bolton, 12.0 in Enfield and in Ilford, and 12.3 in Bury, to 29.1 in Gillingham, 29.2 in Northampton, 29.6 in Carlisle, and 32.5 in Cambridge and in Merthyr Tydfil.

The 6558 deaths from all causes were 437 fewer than the number in the previous week, and included 511 which were referred to the principal epidemic diseases, against numbers rising from 454 to 513 in the four preceding weeks. Of these 511 deaths, 207 resulted from measles, 125 from whooping-cough, 70 from infantile diarrhoeal diseases, 66 from diphtheria, 27 from scarlet fever, and 16 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against 1.4 and 1.5 per 1000 in the two preceding weeks. The deaths attributed to measles, which had been 206, 191, and 210 in the three preceding weeks, slightly fell to 207 last week, and caused the highest annual death-rates of 1.7 in Tottenham and in Enfield, 1.8 in Stockton-on-Tees, 1.9 in Barnsley, 2.0 in Grimsby, 2.4 in Rotherham, 3.1 in St. Helens, 4.9 in Merthyr Tydfil, 5.2 in Gateshead, and 5.3 in Darlington. The deaths referred to whooping-cough, which had increased from 76 to 123 in the four preceding weeks, further rose to 125 last week; the highest rates from this cause were 1.6 in Bristol, 1.7 in Reading, 1.9 in Willesden and in Dewsbury, 2.0 in Carlisle, and 3.1 in Merthyr Tydfil. The fatal cases of diarrhoea and enteritis (among infants under 2 years of age), which had been 62, 73, and 68 in the three preceding weeks, rose to 70 last week, and included 17 deaths in London, 9 in Liverpool, and 4 each in Stoke-on-Trent and Birmingham. The deaths attributed to diphtheria, which had been 83, 77, and 72 in the three preceding weeks, further declined to 66 last week, of which 16 occurred in London, 6 in Manchester, 5 in Birmingham, and 4 in Sheffield. The deaths referred to scarlet fever, which had been 23, 31, and 22 in the three preceding weeks, rose to 27 last week, and included 13 in London and 2 in Leeds. The fatal cases of enteric fever, which had been 12, 12, and 17 in the three preceding weeks, were 16 last week, of which 4 belonged to London and 2 each to Brighton, Blackburn, and Gateshead.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3395 in the 11 preceding weeks, had further fallen to 3299 on Saturday last; 368 new cases were admitted during the week, against 308, 326, and 365 in the three preceding weeks. These hospitals also contained 1676 cases of diphtheria, 219 of measles, 58 of enteric fever, 16 of whooping-cough, and 3 of small-pox. The 1696 deaths from all causes in London were 163 below the number in the previous week, and corresponded to an annual death-rate of 19.6 per 1000. The deaths referred to diseases of the respiratory system, which had been 417, 450, and 497 in the three preceding weeks, declined to 455 in the week under notice, but were 193 in excess of the number recorded in the corresponding week of last year.

Of the 6558 deaths from all causes in the 96 towns 175 resulted from different forms of violence and 456 were the subject of coroners' inquests, while 1805 occurred in public institutions. The causes of 45, or 0.7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, and in 70 other smaller towns. Of the 45 uncertified causes of death 9 were registered in Liverpool, 8 in Birmingham, 4 in Gateshead, 3 each in London and Preston, and 2 each in Stoke-on-Trent, Blackpool, and Carlisle.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1132 births and 1037 deaths were registered during the week ended Saturday, Feb. 13th. The annual rate of mortality in these towns, which had been 21.7, 22.4, and 24.1 per 1000

in the three preceding weeks, declined to 23.1 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 23.1, against 19.1 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 13.5 in Hamilton, 15.1 in Motherwell, and 16.0 in Paisley, to 28.9 in Falkirk, 36.8 in Perth, and 37.4 in Dundee.

The 1037 deaths from all causes were 49 fewer than the number recorded in the previous week, and included 122 which were referred to the principal epidemic diseases, against numbers rising from 92 to 147 in the four preceding weeks. Of these 122 deaths, 81 resulted from whooping-cough, 14 from infantile diarrhoeal diseases, 11 from measles, 8 from scarlet fever, 6 from diphtheria, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.7, against 1.5 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had steadily increased from 28 to 86 in the seven preceding weeks, fell to 81 last week, of which 42 occurred in Glasgow, 20 in Dundee, 5 in Greenock, and 4 in Edinburgh. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had increased from 7 to 16 in the four preceding weeks, fell to 14 last week, and included 5 deaths in Glasgow, and 2 each in Dundee, Leith, and Clydebank. The fatal cases of measles, which had been 7, 6, and 13 in the three preceding weeks, fell to 11 last week, of which 9 were registered in Dundee. The deaths attributed to scarlet fever, which had been 16, 12, and 17 in the three preceding weeks, declined to 8 last week, and included 4 in Glasgow and 2 in Falkirk. The deaths referred to diphtheria, which had been 8, 10, and 13 in the three preceding weeks, fell to 6 last week, of which 2 were recorded in Glasgow. The 2 fatal cases of enteric fever belonged to Glasgow and Coatbridge respectively.

The deaths referred to diseases of the respiratory system, which had been 238, 272, and 302 in the three preceding weeks, fell to 278 in the week under notice, but were 131 in excess of the number recorded in the corresponding week of last year; 35 deaths resulted from different forms of violence, against 30 and 35 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,330 persons at the middle of this year, 680 births and 615 deaths were registered during the week ended Saturday, Feb. 13th. The annual rate of mortality in these towns, which had been 24.0, 24.7, and 26.2 per 1000 in the three preceding weeks, further rose to 26.5 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 25.5, against corresponding rates of 19.1 and 23.1 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 28.0 in Dublin (against 19.9 in London and 21.6 in Glasgow), 24.6 in Belfast, 39.4 in Cork, 27.8 in Londonderry, 23.0 in Limerick, and 13.3 in Waterford, while in the 21 smaller towns the mean death-rate was 24.3 per 1000.

The 615 deaths from all causes were 6 in excess of the number recorded in the previous week, and included 44 which were referred to the principal epidemic diseases, against 32 and 38 in the two preceding weeks. Of these 44 deaths, 17 resulted from whooping-cough, 13 from infantile diarrhoeal diseases, 5 from measles, 4 each from scarlet fever and diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.9, against 1.5 and 2.7 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 9, 11, and 13 in the three preceding weeks, further rose to 17 last week, of which 10 were recorded in Dublin and 3 in Cork. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had been 4, 8, and 10 in the three preceding weeks, further rose to 13 last week, and included 8 in Dublin and 2 in Belfast. The 5 fatal cases of measles, of which 3 occurred in Belfast, were 3 in excess of the average in the earlier weeks of the year. Of the 4 deaths attributed to scarlet fever 3 occurred in Belfast. Two of the 4 deaths from diphtheria and the fatal case of enteric fever were registered in Dublin. In addition to the above deaths, a fatal case of typhus occurred in Galway.

The deaths referred to diseases of the respiratory system, which had been 137, 160, and 172 in the three preceding weeks, further rose to 182 in the week under notice. Of the 615 deaths from all causes, 175, or 28 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 25, or 4.1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.7 per cent.

Correspondence.

"Audi alteram partem."

MILD SMALL-POX.

To the Editor of THE LANCET.

SIR,—In connexion with an annotation in THE LANCET of Feb. 13th, may I add a word on the subject, as I was unavoidably absent from the meeting of the Section of Epidemiology of the Royal Society of Medicine at which Dr. J. B. Cleland and Dr. E. W. Ferguson reported on the outbreaks of small-pox in Australia?

Studying the disease during successive years, I came to the conclusion that it was not safe to make any statement about it without consulting Sydenham, and students of these present mild outbreaks would have done well, as Dr. McPhail reminded them in the discussion, to look up the history of prevaccination outbreaks. The extraordinary difference in their virulence was not only recognised by Sydenham, but by Van Swieten, Mason Good, Jenner, and others. Mason Good mentions that in his own case (1770) he had not more than 20 scattered pustules, and Jenner describes an epidemic as mild and light as the inoculated variety. All the same, it is not a pleasant experience, as happened in my wards, to have an outbreak arise and not reach a diagnosis until the seventh or eighth case proves to be one of confluent small-pox! One unvaccinated child had not more than half a dozen superficial pustules, and Welch and Schamberg report an instance with a single pox. Apart from the low virulence, an interesting feature of many of the recent American outbreaks has been the high percentage of unvaccinated attacked—96 out of 97 cases in the outbreak at Carbondale, Pennsylvania (1912).

With this history one cannot agree with the conclusion of Dr. Cleland and Dr. Ferguson that in Australia or elsewhere small-pox is unlikely to recover again its general intense virulence.

I am, Sir, yours faithfully,

Oxford, Feb. 13th, 1915.

WILLIAM OSLER.

FROST-BITE.

To the Editor of THE LANCET.

SIR,—The paper by Mr. A. W. Mayo-Robson on Frost-bite, which appears in THE LANCET of Jan. 16th, is timely. The subject is certainly one of the most interesting, and is among the most novel of those which have come under our consideration since the beginning of this war. The severity of the cases which we have had in Rouen has varied within the widest limits. There are cases in which no appreciable changes have taken place in the appearance of the limbs, yet the whole of the skin, especially that on the inner side of the foot and on the dorsum of the toes, is acutely hypersensitive even to the lightest touch. There are, at the other extreme, cases in which to all appearance the whole foot is doomed to gangrene.

I am not, however, at this moment so much concerned with the various grades of injury, with the means by which the condition is produced, nor with the absolute necessity in all cases of conservative treatment. I wish more particularly to give a hint with regard to the care of these patients. A great variety of methods of local treatment have been

tried: turpentine and lanoline applications; thorough cleansing and drying, followed by the swathing of the foot in boracic acid powder and wool; painting with tincture of iodine; and so forth. I really think that, apart from the pain inflicted, there is no appreciable difference in the results of these or other methods. At one time all cases were treated by local applications, over which was a covering of wool with a bandage. It is usual to hear the statement made that great pain is suffered by many, indeed by almost all, of the patients. The pain at times may be so severe as to call for morphine or opium for its relief. The pain, however, is due, not so much to the damage inflicted upon the parts, but to the fact that the feet are kept warm.

During the last few weeks here the majority of the patients have had little or no dressing applied. The parts affected are smeared with some ointment, covered with a thin layer of gauze, and left without wool or bandage. The feet are often raised a few inches from the bed upon a hard pillow. The lower part of the legs and the feet are covered in bed only by a sheet. It has been our experience with few exceptions to find that the pain is very considerably lessened or abolished by keeping the parts cold. A patient whose feet have been well wrapped up and bandaged and who has suffered nights of torture will experience relief in a few hours when the bandages are removed and the bedclothes are turned back.

Pain, it may truthfully be said, is almost exactly proportioned to the degree of warmth of the foot. Seeing that, whatever the local treatment, the progress towards recovery in the foot appears to be equally rapid, it is the relief of pain during the time of healing that should be our chief consideration.

I am, Sir, yours faithfully,

Feb. 13th, 1915.

BERKELEY MOYNIHAN,

THE POSITION OF THE FRENCH RED CROSS IN ENGLAND.

To the Editor of THE LANCET.

SIR,—The attention of our committee has been called to an appeal in your issue of Feb. 6th, p. 303, on behalf of the Wounded Allies Relief Committee for £100,000 for the purpose of establishing or maintaining certain Anglo-French hospitals in France. The admirable work done by THE LANCET since the war began in aid of the wounded of all nationalities makes one hesitate to offer anything that may even savour of criticism. At the same time, in the best interests of at any rate the French wounded, it seems well to call attention to certain facts.

There is no doubt that in some of the distant fields of strife—Serbia, for instance—there is ample scope for new societies and fresh individual effort. In the case of the French, however, these considerations do not apply, and the advocacy of new societies established through the enthusiasm of doubtless sincerely well-meaning people can result only in loss of coördination, overlapping, and not infrequently inevitable friction with thoroughly established and fully recognised organisations. France has had for many years three excellent organisations for rendering assistance to the injured in any public calamity. These are: La Société Française de Secours aux Blessés, l'Union des Femmes de France, and l'Association des Dames Françaises. As regards the organisation of help from this country, the French Government,

acting through the Ambassador, has officially appointed the London Committee of the French Red Cross, under the presidency of the Vicomtesse de la Panouse, to represent these three societies, which have in their charge practically the whole of the voluntary care of the wounded French. It provides surgeons, nurses, orderlies, and stores of all kinds for the French voluntary hospitals. It assists in a great many similar ways the British hospital units which have been established by private generosity in France. Most of these, unless actually under the control of the British Red Cross Society, have found it to their advantage to become affiliated to the above London Committee of these three great French societies and to work through it.

This committee has also elaborated a system whereby British surgeons who are good enough to volunteer their services for a month or more can be found suitable posts. Further, the London Committee of the French Red Cross being in intimate official relations with the French Government will be able to make the best arrangements for hospitals and new centres when the movement of the armies we all hope for takes place. It is therefore evident that as far as the French wounded are concerned there is absolutely no need for further societies, and it is certainly inadvisable to distribute subscriptions amongst new organisations for hospitals which may or may not continue, or be allowed to continue, to exist. Such a course, in addition to the inconveniences already mentioned, can only lead to waste of time, energy, and money.

I therefore venture to appeal to intending subscribers wishful to help in the most certain and efficient manner the wounded of the French armies, who have so gallantly held more than 250 miles of the Western battle line, to concentrate their efforts and contributions in favour of the London Committee of the French Red Cross (of which the honorary secretary is Mr. P. A. Wilkins, 25, Knightsbridge, London, S.W.), which is in a position to send the help to the points where it is most needed.

I am, Sir, yours faithfully,

JAMES DONELAN,

Medical Referee to the Committee.

Manchester-square, W., Feb. 15th, 1915.

THE ETIOLOGY OF POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—Dr. J. T. C. Nash in THE LANCET of Jan. 16th asks for further information regarding the cases of poliomyelitis at West Kirby. In the first place, he wishes to know the distance of each infected house from the nearest stable. I am sorry I am not in a position now to give the exact distance, but in no case, I believe, was a stable situated near, or what one usually considers near. With regard to the second point, I understand the same horse and cart took round the milk, so that there is nothing here incompatible with Dr. Nash's theory that stomoxys calcitrans may be carried considerable distances, following or resting on a horse. When investigating the cases, however, I was more impressed by the possibilities and probabilities of human carriers being concerned, and even that one of the distributors of milk was the likely source of infection.

The first case in the last outbreak at West Kirby was the son of a medical man who had attended cases of the previous year. It is interesting to recall that when the late Dr. R. Burnet, of Cornwall, was investigating the outbreak of polio-

myelitis in that county four years ago his only son fell a victim to the disease, probably being infected by his father. There is, I think, a growing body of evidence in favour of the theory of poliomyelitis being spread by the agency of human carriers.

I am, Sir, yours faithfully,

Hartlepool, Feb. 15th, 1915. GEORGE JUBB, M.D., D.P.H.

FAITH AND ASTIGMATISM.

To the Editor of THE LANCET.

SIR,—If it should ever be my misfortune to be tried for my life at the Old Bailey or elsewhere I shall not attempt to obtain the services of Mr. Reginald Evershed as my advocate, for if I did there can be little doubt my state of suspense would very soon end in one of suspension.

Mr. Evershed, in THE LANCET of Feb. 6th, is particularly unfortunate in the case he quotes to support the views of the refraction extremists. Which idea does he hold: that the discovery of the extra 1/4 diopter of astigmatism in the one eye cured the patient? or the mysticism of Prey's letters, &c., and the probable reassurance given him that the glasses would do so? Is not Mr. Evershed between two horns of a dilemma? A dignified silence is a useful thing to maintain when you cannot maintain anything else, and the attitude shown by the two original contributors to the subject may well be commended to Mr. Evershed, at least until he is on surer ground.

Now, Sir, I did not write my first letter with a view to depreciating the shares of the Langham Hotel or of the railways converging upon Harrogate. Far from it. My intention was to disclaim—for myself at any rate—the extreme views held by some members of my specialty in this country which tend to bring the holders and the specialty into ridicule at the hands of the more moderate members of the profession who, fortunately, are in a great majority. Extremists are deficient in the sense of proportion, and specialists are apt to suffer from the same disorder, especially if they specialise too early. My own opinion is that no one should take up any specialty until he or she has had ten years' experience of general practice. Such a practitioner gets out of the way of looking at things and people through the same pair of spectacles. Refraction extremists are by no means confined to this country, and across the herring pond is one of their archpriests, who is so extreme that I quite look forward to his asserting some day that St. Paul's thorn in the flesh was really a refraction error, and that if only the German Emperor had paid a visit to his "office" this horrible war would certainly have been prevented. And though prevention is better than cure, yet since it is claimed by some that a tendency to insanity can be cured by suitable correcting lenses, would it not be well to appoint one of these gentlemen ophthalmic surgeon to Bedlam? Who knows how many of the unfortunate inmates thereof might be cured or relieved by a pair of spectacles? *Quis dubitat?*

We see extremes and extremists everywhere—e.g., in politics the advanced Radical thinks nothing good can come from the opposite party and *vice versa*; in the Church, the extreme High Church cleric, who plays croquet on Sunday afternoon, would shrink from burying a Dissenter in his churchyard, whilst another would be only too pleased to bury the whole of them there; or the eugenist crank who insists upon our marrying Mary when we feel we can only be happy with

Jane in spite of the small strawberry mark on her arm; and so on, and so on. Extremists, of course, have their place in the sun and do some good. They tend to develop the antibodies of moderation and make us challenge and prove all things, holding fast to that which is true, which, in the long run, is invariably found to be moderate. But, Sir, even in the length of one's epistles to the Editor of THE LANCET one must study the science and practise the art of moderation, and to escape the opposite soft impeachment I will at once subscribe myself

Yours faithfully,

Norwich, Feb. 13th, 1915.

S. JOHNSON TAYLOR.

THE SUPPLY OF LOCUM TENENTS.

To the Editor of THE LANCET.

SIR,—May I trespass on your space for a few remarks on this very vital question? When war broke out necessarily a large number of medical men who belonged to the Royal Army Medical Corps were immediately obliged to take up their duties, and many others have in ever-increasing numbers since loyally and patriotically in obedience to their country's call voluntarily thrown up lucrative practices and applied for commissions, and by no means a small number have enlisted in the fighting ranks.

Necessarily, therefore, a largely increased demand has arisen for locum tenents to safeguard the practices at home of those who have nobly offered their services and lives for England's honour. Owing to many of those who had hitherto been available as locum tenents also responding to the call it has become increasingly difficult to find enough reliable substitutes, and I regret to have to say that there is a tendency on the part of a few to take advantage of the shortage to demand fees quite incompatible with the services rendered. May I through your columns implore all who are in any way able to take up duty again to offer their services in the present crisis?

I am glad to say that many retired practitioners up to 70 years of age have loyally come forward and most satisfactorily filled some of the gaps, and some of our Belgian Allies who can speak English a little have been of great assistance for temporary work, but more are urgently needed if we are to ensure that the practices of those who have so nobly rallied round the flag shall not suffer. There is plenty of work for every available qualified man, especially if prepared to show his patriotism and loyalty to his profession by accepting fees in some measure proportionate to the size of the practice he is taking charge of.

I am, Sir, yours faithfully,

Adam-street, Adelphi, Feb. 8th, 1915. PERCIVAL TURNER.

SULPHUR AND RHEUMATISM.

To the Editor of THE LANCET.

SIR,—In reference to what Sir Lauder Brunton says about sulphur and rheumatism in your issue of Feb. 6th, I think the following case is to the point. A patient, aged 55 years, had suffered from joint pains, called rheumatism, since he was 19 fairly continuously, and no treatment did him any good. It happened that he took sulphur for the relief of an attack of lumbago and continued it for some four months as a prophylactic. His rheumatism was completely cured and has remained so for some six years, during which he

has continued to take two or three troch. sulph. two days a week. The essence of the treatment as a cure is that it should go on some months before the cure is likely to obtain.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 13th, 1915.

SHEFFIELD NEAVE.

THE SHORTAGE OF RESIDENT MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—Dr. R. R. Rentoul's letter in your last issue, which somewhat severely comments on mine of Feb. 6th, has been the means of my discovering that in my letter the word "voluntary" is inserted before the word "residence," thereby giving the impression that we wished to get the doctors' services for nothing. Such is far from the case; we are quite ready to pay such doctors even more than the "lost dog's wage," which Dr. Rentoul mentioned as the ordinary rate of pay. If we cannot pay the princely salaries that Dr. Rentoul states obtain in Government services, it is our misfortune and not our fault. At the present time the difficulty we are experiencing is being felt by almost every hospital in London. To use a colloquialism, residents are hardly to be obtained for love or money.

I am, Sir, yours faithfully,

W. M. WILCOX,
Secretary.

East London Hospital for Children,
Shadwell, E., Feb. 16th, 1915.

* * We regret the mistake. Voluntary help is being accorded to some hospitals in a similar dilemma, we understand, and medical men who are able to assist charitable work in this way are discharging a most valuable duty.—ED. L.

TYPHOID AND PARATYPHOID INFECTION IN RELATION TO ANTITYPHOID INOCULATION.

To the Editor of THE LANCET.

SIR,—Owing to an error in the delivery of the "proof" of the paper which you so kindly published for us last week at very short notice, two small errors remained uncorrected. On p. 325, col. 1, the second line from the bottom should read: "In non-inoculated persons," &c. As it stands the statement is obviously nonsense. On the same page, col. 2, line 35 (about the middle of the page), the figure 700 should be 900, as can be seen from the chart on the following page.

We are, Sir, yours faithfully,

GEORGES DREYER,
E. W. AINLEY WALKER,
ALEX. G. GIBSON.

Department of Pathology, University of Oxford,
Feb. 16th, 1915.

"WOOLNER'S TIP" AND FAMILY RESEMBLANCES.

To the Editor of THE LANCET.

SIR,—Apropos of the informing annotation on this subject in THE LANCET of Feb. 13th it may interest your readers to know that Thomas Woolner was probably careful to reproduce the "tip," named after him, in his well-known bust of Darwin now at Cambridge. At least, one may infer that he did so, as it may be felt, when searched for *ad unguem*, to use the old Roman sculptors' phrase, in the left ear of the plaster replica of this bust recently

placed between Huxley and Owen in the museum vestibule of the Royal College of Surgeons of England. The plaster bust, presented to the College by Sir Lauder Brunton, Bart., was executed in or after 1869, in which year Woolner sculptured the likeness of Darwin's head. It is not a very good likeness of the great naturalist, a better having probably been caught by Sir Lauder Brunton himself, whose model in clay after the engraving by Jeens in *Nature*, elicited the remark from Darwin, "Well! one never knows what one is like." The pose of this was absolutely correct: Woolner's was not, though Woolner has reproduced the Cro-Magnan brows of the great authority on earliest man. Darwin refers to the "celebrated sculptor, Mr. Woolner," in an early chapter of the "Descent of Man," which was published in 1871. Woolner became aware of the "little blunt point projecting from the inwardly folded margin or helix" when engaged on a bust of Puck. He sent a drawing showing the "tip" to Darwin, which the latter has reproduced in his text. In Woolner's marble bust of Sir John Simon, K.C.B., also at the College, the tip is plainly distinguishable, but it does not reappear in the plaster cast of the same. The older sculptors, such as Chantrey, executed the ear conventionally, if, indeed, they did not hide it under a fringe of hair. This appears on examination.

It is a question how far a sculptor should be a minute anatomist. The Greeks, as Professor Mahaffy points out, were eclectic, and sculptured "combination" limbs or organs, choosing the most shapely points from many models and thus combining an idealised type. This appears in their reproductions of the genital organs of man. M. Rodin, on the other hand, was so intent on reproducing the exact proportions and outlines of limbs, muscles, veins, &c., that he made of his Saint John a sort of squat anatomical model, suggestive of a man divested of underclothing. The statue when sent in competition to the Académie des Beaux Arts was rejected by the judges on the ground that it was a cast from nature—at least, so the legend runs.

With regard to family likenesses, I may mention that an ancestral type sometimes reappears in a surprising manner. The late Paul Fordyce Maitland, a landscape painter familiar some years ago to habitués of Kensington Gardens, might have been Maitland of Lethington returned to life, so strikingly did his fine face resemble that of his ancestor. The same may be said of a living descendant now in London of Mallet du Pan and of Juan Bonaparte. And I trust I am not guilty of impertinence when I say that Miss Hunter Baillie, when standing in front of G. Home's portrait of her illustrious collateral ancestor John Hunter, wearing a brown coat, appeared to interested observers as if she had stepped out of the frame.

Others besides myself may have observed that for one moment just after death a face seems sometimes to change back to the exact resemblance of some familiar family portrait or miniature.

I am, Sir, yours faithfully,

P. V.

Feb. 15th, 1915.

On Feb. 15th, at Bow-street police-court, Mr. Hopkins committed for trial at the Central Criminal Court Arthur Alfred Henry Bennett, described as a surgeon of no fixed abode, on the charge of committing perjury in the High Court of Justice in July last during the hearing of the action for libel unsuccessfully brought by Mr. C. H. Stevens against the British Medical Association.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE CENTRAL EXECUTIVE COMMITTEE.

A MEETING of the Central Executive Committee was held on Feb. 11th at the office of the British Medical Association, when Mr. J. Y. W. MacAlister, librarian and secretary of the Royal Society of Medicine, joined the meeting as a coöpted member of the committee. Correspondence between the chairman, Sir Rickman Godlee, and the President of the General Medical Council was read, showing the difficulty that there would be in securing any remission of, or reduction in the registration fees payable by Belgian graduates now admitted to the British Register under certain conditions. The committee therefore decided to act in accordance with the course of conduct previously decided upon, and the registration fees will be advanced by the Fund in cases where such action appears necessary and suitable, and where the Belgian graduates have received offers of employment.

Dr. Des Vœux took the occasion of the first meeting held since the money which had passed through the treasurer's hands exceeded £5000 to make a short financial statement. He said that £5297 had been received by him and acknowledged in *THE LANCET*, the *British Medical Journal*, and the pharmaceutical journals. More money than this had been subscribed, as certain local funds remained in the hands of the local treasurers, as did the Scottish and Irish Funds. Mentioning the principal subscriptions in detail, he said that so far money had only been received from 1500 people, allowing for the fact that certain large subscriptions had been sent to him with no epitomised details. He had placed £4000 on deposit at the bank, and showed that a sum of about £470 had been spent already, or was arranged to be immediately spent upon pecuniary relief in urgent cases, upon purchase of clothes, upon advances for registration fees, and upon boxes of medical material shipped to Brussels through the Commission for Relief in Belgium. The committee decided to carry on their work for the present upon the same lines, on the one hand helping immediately in necessary cases, and on the other husbanding the money as much as possible, after the relief of urgent distress, so that it may be available as the nucleus of a future international subscription for the rehabilitation of the medical profession in Belgium.

The committee, through the eleemosynary sub-committee, has made grants to certain urgent cases, either for the purchase of necessities like food and clothes, or to facilitate the taking up of paid appointments. The registration fees have also been paid of Belgian medical men who are joining the British Register preparatory to accepting salaried posts.

THE AMERICAN COMMITTEE FOR THE AID OF BELGIAN PHYSICIANS.

The treasurer of the committee of American physicians constituted for the aid of the Belgian medical profession has made a report of all contributions received up to and including Jan. 16th, 1915. A total of \$1,414 had been received by that date, including subscriptions of \$100 from Dr. Franklin H. Martin, Chicago; Dr. F. F. Simpson, Pittsburg; Mrs. John B. Murphy, Chicago; Dr. Abraham Jacobi, New York; and the Academy of Medicine, Cincinnati. The expenditure so far includes the

payment for 450 boxes of food purchased from Austin, Nichols and Co. at \$2.20 per box. Dr. F. F. Simpson, Jenkins Arcade Building, Pittsburgh Pennsylvania, is acting as treasurer to the committee, and has issued a circular stating that all contributions will immediately be converted into supplies and that these will be transmitted to Belgium and distributed among the Belgian doctors. The circular issued by Dr. Simpson and Dr. Howard C. Taylor, the secretary of the committee, says: "Every cent of every dollar contributed will be available for the purchase of supplies as the carrying charges are provided for by the American Commission for Relief in Belgium. The first one thousand dollars contributed have been expended by the Executive Committee for food and supplies, and the packages properly labeled have been started for their destination."

The personnel of the committee as now constituted is as follows: Victor C. Vaughan, President, American Medical Association; William L. Rodman (Vice-chairman), President-elect, American Medical Association; John B. Murphy, President, Clinical Congress of Surgeons of North America; Charles H. Mayo, President-elect, Clinical Congress of Surgeons of North America; J. M. T. Finney, President, American College of Surgeons; J. Riddle Goffe, President, Seventh International Congress for Obstetrics and Gynaecology; Stuart McGuire, President, Southern Medical Association; Samuel J. Meltzer, President, Association of American Physicians; Hugh Cabot, President, Mississippi Valley Medical Association; William C. Woodward, President, American Public Health Association; Theodore C. Janeway, Johns Hopkins Medical School, Baltimore; Frank Billings, Chicago; George H. Simmons, Editor, *Journal of the American Medical Association*; Franklin H. Martin (Chairman), Editor, *Surgery, Gynaecology, and Obstetrics*; Thomas L. Stedman, Editor, the *Medical Record*; E. W. Taylor, Editor, the *Boston Medical and Surgical Journal*; Claude L. Wheeler, Editor, the *New York Medical Journal*; Howard Canning Taylor (Secretary), New York; and Frank F. Simpson (Treasurer), Pittsburgh, Pennsylvania.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

	£ s. d.		£ s. d.
Dr. Sheila M. Ross ...	1 1 0	Brussels Medical Graduates' Association (per Dr. Major Greenwood, Treas.), further donation ...	6 6 0
Mr. G. Grahame, H.M. Consul-General ...	1 1 0	Miss C. M. Lacey ...	1 1 0
Dr. Edgar F. Cyriax ...	3 3 0	Jersey Medical Society (per Mr. E. O. B. Voisin, Treas.) ...	5 5 0
Tower Hamlets Division, B.M.A. (per Dr. W. H. F. Oxley (Hon. Sec.)) first list—		Medical Committee, Royal Free Hospital, Gray's Inn-road (per Hon. Sec.) ...	3 15 0
Dr. Rowe Hall ...	2 2 0	Dr. Edward Scott ...	2 2 0
Dr. G. R. Young ...	2 0 0	Dr. T. E. Walker ...	1 1 0
Dr. D. Spillane ...	1 1 0	Nurses' General Hospital, Rangoon ...	100 0 0
Dr. A. Harvey ...	1 1 0	Staff Branch, South Staff. Division, B.M.A. (per Dr. H. C. Mactier, Hon. Sec.), second list—	
Dr. J. A. Milne ...	1 1 0	Dr. J. A. Lycett ...	1 1 0
Dr. D. Hume ...	1 1 0	Dr. Lila Gregg ...	1 1 0
Dr. T. J. S. Suffield ...	1 1 0	Mr. A. H. W. Hunt ...	1 1 0
Dr. J. Paxton ...	1 1 0	Dr. E. Weatherhead ...	0 10 0
Dr. C. K. Toland ...	1 1 0	Dr. W. S. Badger ...	0 10 6
Dr. B. Byrne ...	1 1 0	Messrs. William Ransom and Son, Ltd. ...	5 5 0
Dr. H. Richardson ...	1 1 0		
Dr. F. Spurr ...	1 1 0		
Dr. Butler Hogan ...	1 1 0		
Dr. J. H. Arthur ...	1 1 0		
Dr. E. A. Campbell ...	1 1 0		
Dr. W. H. F. Oxley ...	1 4 6		
Dr. L. Turiansky ...	0 10 6		
Dr. B. I. Rahim ...	0 5 0		
Dr. G. Hessenauer ...	0 5 0		
Dr. Frank Stevenson ...	2 2 0		
Mr. W. Bray ...	0 5 0		
Dr. A. Bowe ...	1 1 0		

	£ s. d.		£ s. d.
Stourbridge Medical Society (per Dr. G. J. Dudley, Hon. Sec.) ...	2 2 0	Dr. C. Gurney Thompson ...	0 10 6
Mr. T. J. Webster ...	2 2 0	Dr. L. P. Scott ...	0 10 6
Lt.-Col. R. Davis, I.M.S. ...	1 0 0	Dr. J. L. Sykes ...	0 10 6
Lt.-Col. F. Marsh, R.A.M.C. (T.) ...	5 5 0	Dr. Kingdon ...	0 10 6
Mr. A. Li. Vaughan ...	2 2 0	Dr. A. V. Craig ...	0 10 6
Sir Felix Semon, K.C.V.O. ...	2 2 0	Dr. I. F. Broughton ...	0 10 6
Dr. H. N. Keeling ...	1 0 0	Dr. W. H. Plaister ...	0 10 6
Dr. J. R. Preston ...	1 1 0	Dr. G. R. Plaister ...	0 10 6
Dr. Mabyn Read ...	2 2 0	Dr. Wm. Hern ...	2 2 0
Mr. V. S. Hodson ...	1 1 0	Mr. T. W. Townley ...	0 10 6
Woodwich Division, B.M.A. (per Dr. B. W. Lacey, Hon. Sec.)—		Mr. G. Weston ...	0 10 6
Dr. A. S. St. John ...	1 1 0	Messrs. M. H. Stiles and Son ...	0 10 6
Oldham Medical Society (per Dr. F. F. Pochin, Hon. Sec.), second list—		Mr. E. J. Millard ...	2 2 0
Dr. A. Wharton ...	2 2 0	Mr. E. H. Farr ...	2 2 0
Dr. Wilson ...	2 2 0	Mr. L. Cooper ...	1 1 0
Dr. Clegg ...	1 11 6	Mr. H. O. Thomas ...	0 10 6
Dr. Low ...	1 11 6	Norwich and District Pharmacists' Association (per Mr. P. Robinson), first list—	
Dr. Ferguson ...	1 1 0	Mr. G. C. Maynard ...	1 1 0
Dr. Lendrum ...	1 1 0	Mr. H. J. Heyhoe ...	1 1 0
Dr. Wilkinson (second donation) ...	0 10 6	Mr. J. Staton ...	1 1 0
Birmingham Local Committee (per Dr. Robert Saundby, Hon. Sec.), seventh donation—		Mr. P. Robinson ...	1 1 0
Mr. J. Furneaux Jordan (from Members' Fund, Birmingham Branch, B.M.A.) ...	10 10 0	Mr. W. H. Hurn ...	1 1 0
Dr. and Mrs. A. R. Forrest-Hay (proceeds of Whist Party) ...	9 5 0	Mr. Houlton ...	1 1 0
Dr. A. Vaughan Bernays ...	2 2 0	Mr. T. N. Eastland ...	1 0 0
Mr. T. H. Smith ...	1 1 0	Mr. F. G. E. Plumstead ...	0 10 6
Dr. A. Douglas Heath ...	2 2 0	Mr. F. Smith ...	0 10 6
Dr. E. L. Bunting (per Dr. C. Pollard) ...	1 1 0	Mr. F. T. Alpe ...	0 5 0
Dr. S. W. Haynes ...	1 0 0	Mr. Robinson (Dereham) ...	0 5 0
Middlesex Division, Tottenham Ward, B.M.A. (per Dr. G. R. Plaister, Hon. Sec.)—		Mr. A. E. Beeston ...	1 1 0
Dr. K. B. Marjoribanks ...	1 1 0	Mr. F. S. Cullen ...	2 2 0
		Mr. H. E. DeCarle ...	1 1 0
		Mr. C. H. Hipperson ...	0 10 6
		Mr. W. J. Lacey ...	1 1 0
		Mr. W. H. Lenton ...	1 1 0
		Mr. H. G. Maddison ...	0 5 0
		Mr. J. M. Weller ...	1 0 0
		Messrs. Smith and Sons ...	1 1 0
		Western Pharmacists' Association (per Mr. H. R. Procter) ...	120 0 0
		Thames Valley Pharmacists' Association (per Mr. A. Higgs) ...	11 11 0
		Mr. G. H. Toy (per Mr. F. Smith, Hon. Sec. Birmingham Pharmaceutical Association) ...	0 10 0
		Mr. A. Pellew ...	1 1 0

The Western Pharmacists' Association head the list with the handsome donation of £120, and £100 have been received from the Nurses' General Hospital, Rangoon.

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund and crossed Lloyds Bank, Limited. These will be acknowledged by post direct, and a list will appear in THE LANCET weekly.

A WATER SCARE IN LONDON.—Water consumers in the west-end district of London were somewhat alarmed early in the week to find that their service-supply was offensive both to the taste and smell. We understand that an official assurance has been issued to the effect that the unpleasant condition of the water was due to harmless algae—water organisms of no pathogenic significance whatever. Two years ago the same thing happened in the Hampstead district without any harm accruing. The alarm was intensified in the recent instance by a suggestion that possibly the reservoirs had been tampered with by our enemies. We wonder whether this departure from the normal condition of our water-supply was possibly connected with the flooding of the Thames a month or so ago. We then remarked that "it will be interesting to watch the future official reports upon the purity of the supply based upon the examination of samples synchronising with the flooding period." Consumers are perfectly justified in refusing to use an offensive water until the circumstances are cleared up, but in the meantime they would be safeguarded by adopting the simple precaution of boiling the water, when its disagreeableness would disappear and all questions of its possible pathogenicity dispersed.

The War.

MENTIONED IN DESPATCHES.

The following officers connected with the medical profession and occupying the indicated positions with our army are recommended in Sir John French's despatch, dated Jan. 14th and issued from the War Office this week, "for gallant and distinguished service in the field." Alas, several of them are no longer with us.

General Headquarters and Staff, &c.

Brunskill, Maj. J. H.	Porter, Surg.-Gen. (temp.) R.
Ensor, Maj. H., D.S.O.	Sawyer, Col. R. H. S.
Ferguson, Lt.-Col. N. C., C.M.G.	Swan, Col. W. T.
Geddes, Col. R. J., D.S.O.	Treherne, Col. F. H.
Irvine, Maj. F. S.	Sloggett, Surg.-Gen. Sir A. T., C.B., C.M.G.
Martin, Maj. J. F.	Holt, Brevet-Col. M. P. C., D.S.O.
Meeks, Col. J.	Moore, Lt.-Col. S. G.
Morgan, Maj. C. K.	
O'Keefe, Col. M. W.	

Medical Services.

Barbour, Maj. J. H.	Macdonald Lt.-Col. S.
Bateman, Maj. H. R.	McMunn, Maj. J. R.
Beatty, Maj. M. C.	Macpherson, Surg.-Gen. W. G., C.M.G.
Bewley, Lt.-Col. A. W.	Makins, Col. (temp.) G. H., C.B.
Black, Maj. R. B., Res. of Off.	Middleton-West, Capt. S. H., I.M.S.
Bowlby, Col. (temp.) Sir A. A., Kt., C.M.G.	Nash, Lt.-Col. L. T. M.
Bradford, Col. (temp.), Sir J. R., K.C.M.G., F.R.S.	Needham, Maj. R. A., I.M.S.
Brazier-Creagh, Lt.-Col. G. W., C.M.G.	Norington, Maj. H. L. W.
Burtchell, Lt.-Col. (temp. Col.) C. H.	O'Donnell, Col. (temp. Surg.-Gen.) T. J., D.S.O.
Campbell, Capt. J. H.	O'Grady, Maj. S. De C.
Chalk, Qrmr. and Hon. Maj. A. J.	Osborne, Qrmr. and Hon. Lt. J. W. Pile, G. H., Esq. (British Red Cross Society) (recommended by G.O.C. II. Corps).
Dennis, Maj. B. R.	Power, Maj. W. M.
Dwyer, Capt. P.	Prescott, Maj. J. J. W., D.S.O.
Ellis, Maj. W. F.	Purser, Maj. L. M.
Evans, Maj. C. R.	Rahilly, Capt. J. M. B.
Evans, Maj. P.	Ryles, Capt. C.
Fell, Maj. M. H. G.	Scott, Lt.-Col. B. H.
Glasse, Lt. (temp.) J. M.	Shanahan, Lt.-Col. D. D.
Goodbody, Maj. C. M., I.M.S.	Starr, Lt.-Col. W. H.
Hardy, Lt.-Col. F. W.	Stephens, Maj. F. A.
Harrison, Maj. L. W.	Tabuteau, Capt. G. G.
Huntingford, Qrmr. and Hon. Lt. A.	Thomson, Maj. C. G.
Jones, Col. F. W. C.	Tyndale, Maj. W. F., C.M.G.
Kiddle, Maj. F.	Unwin, Maj. T. B.
Lawson, Lt.-Col. C. B.	Wall, Maj. F., I.M.S.
Leake, Maj. J. W.	Watkins, Qrmr. and Hon. Capt. J., Res. of Off.
Leishman, Brev.-Col. Sir W. B., F.R.S.	Watts, Maj. B.
Luther, Lt.-Col. A. J.	

Royal Army Medical Corps.

Balfour, Lt. T. H.	Lang, Lt. E. C.
Bazett, Lt. H. C.	Lloyd Jones, Capt. P. A.
Bliss, Maj. E. W.	Loughmen, Capt. W. F. M.
Bowle, Capt. S. C.	Lyon, Lt. D. M.
Taylor, Lt. (temp.) R. B.	McCullagh, Lt. W. McK. H.
Browne, Capt. T. W.	MacDougall, Maj. A. J.
Buckley, Qrmr. and Hon. Lt. E. J.	McLoughlin, Lt.-Col. G. S., D.S.O.
Bullock, Lt. (temp.) A. E.	McQueen, Capt. C.
Carrington, Lt. (temp.) A. E.	Martin, Lt. (temp.) A.
Carruthers, Capt. V. T.	Martin-Leake, Lt. (temp.) V. C.
Carter, Capt. H. St. M.	Mathews, Lt. (temp.) J. B.
Charles, Lt. J. P.	Maurice, Maj. G. T. K.
Clements, Maj. R. W.	Meaden, Capt. A. A.
Copeland, Lt.-Col. R. J.	Milne, Lt. (temp.) F. W.
Cowan, Lt. F. G.	Milne-Thomson, Lt.-Col. A. (T.F.).
Crawford, Maj. V. J.	Nickerson, Maj. H. W. S., V.C.
Crawford, Lt.-Col. G. S.	O'Keefe, Capt. J. J.
Davidson, Lt. F. C.	Ormsby, Maj. G. J. A.
Dunne, Capt. J. S., D.S.O.	Percival, Lt. E.
FitzGerald, Maj. FitzG. G.	Phelan, Capt. E. C.
Forde, Lt.-Col. B.	Phillippo, Lt. R. B.
Fox, Maj. A. C.	Phillips, Capt. T. McC. (died of wounds).
Fraser, Capt. A. D.	Pickard, Lt.-Col. R.
Freeman, Lt. F. P.	Pirrie, Lt. I. M.
Glanvill, Capt. E. M. (killed in action).	Pirrie, Lt. R. E. (killed in action).
Greenlees, Lt. (temp.) J. R. C.	Potts, Capt. E. T.
Greenwood, Maj. A. R.	Price, Lt. R. B.
Griffin, Lt. (temp.) E. H.	Proffit, Maj. C. W.
Grogan, Capt. J. B.	Purdon, Capt. W. B.
Gwynne, Lt. J. FitzG.	Rattray, Maj. M. MacG.
Hare, Lt. J.	Richards, Maj. F. G.
Helm, Lt. C.	Richardson, Lt. M. (died of wounds).
Honeybourne, Capt. V. C.	Roberts, Capt. F. E.
Hooper, Maj. A. W., D.S.O.	Robertson, Capt. H. G.
Hudleston, Maj. W. E.	Rutherford, Maj. N. J. C.
Ingram, Lt. (temp.) W. W.	Sampson, Capt. P., D.S.O.
Jackson, Lt. (temp.) J. L.	Scott, Capt. T. H.
James, Lt. (temp.) P. W.	Silver, Maj. J. P.
Kelly, Capt. C.	

Slyter, Maj. E. W.
Soltan, Lt.-Col. A. B.
Steward, Capt. S. J., D.S.O.
Stewart, Lt. (temp.) J. S.
Thurston, Maj. H. S.
Tyrell, Lt. W.
Waddy, Lt. (temp.) J. R.
Walker, Maj. F. S.

Walshe, Capt. S. J. A. H.
Watson, Lt.-Col. A. A. (Lt.-Col., R.A.M.C., T.F.).
Whitehead, Lt. N. T.
Williamson, Lt. (temp.) J. S.
Wilson, Capt. H. T.
Winder, Maj. J. H. R.
Wright, Capt. W. G.

Indian Army.—Medical Services.

Moorhead, Lt.-Col. A. H., I.M.S.	1st. Class Sub. Assist. Surg.
Sloan, Maj. J. M., D.S.O.	Muhammad Umar (937).
Harvey, Capt. A. W. M., I.M.S.	1st. Class Sub. Assist. Surg.
Jones, Capt. J. B.	Wahidyar Khan (852).
Braganza, 3rd Class Assist. Surg. F.	

THE CASUALTY LIST.

The casualties among officers in the Expeditionary Force reported from General Headquarters since our last issue include the name of Surgeon-Major Robert Macnamara Cowie, 1st Life Guards, wounded.

THE CONTROL OF ENTERIC FEVER AT HOME.

The War Office, after consultation with the Local Government Board, have decided that a special record is to be kept by military sanitary officers concerning each case of enteric fever occurring amongst soldiers in this country. The objects in view are (1) to ensure that each case is made the subject of inquiry; (2) to provide material for further inquiry where multiple cases occur; (3) to compare the experience of various military units; and (4) to enable a summary to be prepared of the experience of the army as a whole and in different parts of it.

Under the arrangements already made military medical officers are required to inform the medical officer of health of the sanitary district in which troops are stationed of any cases of enteric fever which may occur, and it is important that the medical officer of health should coöperate with these officers and with military sanitary officers in tracing the source of infection and removing any conditions favouring spread of the disease. The medical officer of health will be in a position to give information as to the relationship of each case to causes of infection present in his district, or, if the infection has been contracted elsewhere, to communicate on the subject with the medical officer of health of the district concerned. The War Office and Local Government Board have agreed upon a method of procedure in regard to the forms of record, which can be obtained by medical officers of health of sanitary districts on application to the Local Government Board.

THE COMMANDER-IN-CHIEF ON THE WORK OF THE R.A.M.C.

Field-Marshal Sir John French in his latest despatch pays the following tribute to the medical service of the British Expeditionary Force:—

Since the commencement of hostilities the work of the Royal Army Medical Corps has been carried out with untiring zeal, skill, and devotion. Whether at the front under conditions such as obtained during the fighting on the Aisne, when casualties were heavy and accommodation for their reception had to be improvised, or on the line of communications, where an average of some 11,000 patients have been daily under treatment, the organisation of the medical services has always been equal to the demands made upon it. The careful system of sanitation introduced into the army has, with the assistance of other measures, kept the troops free from any epidemic, in support of which it is to be noticed that since the commencement of the war some 500 cases only of enteric have occurred.

The organisation for the first time in war of motor ambulance convoys is due to the initiative and organising powers of Surgeon-General T. J. O'Donnell, D.S.O., ably assisted by

Major P. Evans, Royal Army Medical Corps. Two of these convoys, composed entirely of Red Cross Society personnel, have done excellent work under the superintendence of regular medical officers. Twelve hospital trains ply between the front and the various bases. I have visited several of the trains when halted in stations, and have found them conducted with great comfort and efficiency. During the more recent phase of the campaign the creation of rest depôts at the front has materially reduced the wastage of men to the line of communications.

Since the latter part of October, 1914, the whole of the medical arrangements have been in the hands of Surgeon-General Sir A. T. Sloggett, C.M.G., K.H.S., under whom Surgeon-General T. P. Woodhouse and Surgeon-General T. J. O'Donnell have been responsible for the organisation on the line of communications and at the front respectively.

THE BRITISH RED CROSS SOCIETY.—The summary of the work for the week ending Feb. 13th states that since the last report ambulances have been despatched to Dunkirk, Boulogne (2), and Havre (3). A touring car has been sent to Calais. The number of hospitals accepted by the War Office to date is 759, containing beds for 20,771, including 210 beds accepted during the past week.

THE HEALTH OF THE NAVAL DIVISION.—The following announcement was made this week by the Secretary of the Admiralty: Rumours in circulation that the general health of the Naval Division in training at the Crystal Palace is unsatisfactory are quite inaccurate. Cases of serious illness of every kind are bound to occur in any large body of men like that of the Naval Division, but on the whole the health of the men has been and is excellent, and there is no reason to anticipate any deterioration in this respect. Out of 8000 men the average sick list is under 150, or less than 2 per cent.

SOLDIERS' AND SAILORS' DENTAL AID FUND.—The objects of this fund are the conservation of the teeth of soldiers and sailors who are already in the Services, and the provision of dental treatment for recruits with defective teeth. Reports both here and from the front testify to the good work which has been done. An appeal for subscriptions which has been issued by the committee should therefore meet with a ready response, and Queen Alexandra has shown her appreciation of the work by heading the subscription list. All the work is voluntary, the Fund pays for artificial teeth, and the dental departments of hospitals and dental surgeons do the filling, extraction, fitting, and so forth. It may be pointed out that at one dental hospital alone 4000 patients were treated from September to December last year, and it is estimated that quite 6000 require to be dealt with immediately. Lady Frederick Conyngham is the honorary secretary, and the address of the Fund is 36, Leicester-square, London, W.C.

SCOTTISH AMBULANCES FOR THE FRONT.—Our Edinburgh correspondent writes: "In order to meet the needs of the great armies being sent from this country to France, and so that the suffering of the sick and wounded may receive the promptest possible care and attention, strenuous efforts are being made by the Red Cross Society to place at the disposal of the War Office an adequate supply of ambulance wagons. That Red Cross workers in Edinburgh and district have been putting their best foot foremost was shown by the splendid 'turn out' last week of fully equipped motor ambulances destined for the front, which paraded the streets and were inspected by Lord Provost Inches. The cars on parade numbered nine, and were part of a convoy of 50 ambulances, motor cycles, and staff cars which are being handed over to the Scottish Branch of the Red Cross Society to the War Office, and which are to proceed to the front as a Scottish column at an early date."

THE SCOTTISH MOTOR AMBULANCE COLUMN.—Our Edinburgh correspondent refers above to the contribution by the Scottish capital towards the gift of motor ambulances from the people of Scotland to the War Office. On Feb. 17th the King inspected the full column of 62 vehicles at Buckingham Palace, and a luncheon was held at the Royal Automobile Club to signalise the event. Sir George T. Beatson, K.C.B., M.D., chairman of the Scottish Branch of the British Red Cross Society, presided over the gathering,

and was supported among others by the Duke of Buccleuch, the Hon. A. Stanley (chairman of the executive committee of the British Red Cross Society), Surgeon-General M. W. Russell, A.M.S., and Major Fleming (secretary of the Scottish Branch). The record of the Scottish branch during the war is one of which Scotland may well be proud. All classes have contributed in money or in kind, and the total war fund raised is now over £140,000, of which £80,000 has been devoted to the purchase and upkeep of motor ambulances at the seat of war. Out of the funds 91 ambulance cars have already been provided.

ABERDEEN AND THE WAR.—Our local medical correspondent writes: "Altogether some 2900 wounded soldiers and sailors have been treated in the Aberdeen hospitals, about 380 being Belgian soldiers. In addition to this, between 500 and 600 local soldiers have been treated at the hospitals.—The Aberdeen Burgh Panel Committee have issued a circular to the medical practitioners in Aberdeen regarding the proposed establishment of a central bureau in connexion with the carrying on of the work of service practitioners. The proposed scheme is to have a central bureau to which all calls are to be sent, these calls to be allocated by the bureau amongst civil practitioners who may agree to do the work, always keeping in view as far as possible that practitioners should have their calls in the districts in which they reside. All fees would be collected by the bureau, and after deducting expenses, half would go to the service practitioner and the remaining half to the practitioner who had done the work. If necessary, a central consulting-room would be established. It is proposed that both panel and private practice should be undertaken by the bureau, and the freedom of choice of a doctor would, as far as possible, be given to patients."

ABERDEEN ROYAL INFIRMARY AND THE WAR.—At the annual general meeting of the corporation of the Aberdeen Royal Infirmary and Lunatic Asylum the chairman, Mr. Alexander Duffus, in moving the adoption of the report, said that the year's work had been carried out under very exceptional circumstances. At one time it looked as if the medical and surgical staff would be reduced to one, all the others being mobilised and either away from Aberdeen on service or not available, owing to the claims on them for duty in military hospitals in town. Fortunately, however, an arrangement was come to with the military authorities under which a certain number of the medical and surgical staff were enabled to attend, to a reasonable extent, daily to infirmary work. In August last, in response to a request from the Admiralty, arrangements were made to provide for a certain number of naval casualties. As yet that accommodation has not been required, though 69 cases of naval sick have been treated. When the pressure upon military hospitals in Aberdeen was very great arrangements were made for 50 beds to be available for the more serious of military wounded, and in all 227 soldiers have been admitted and dealt with as infirmary patients. While doing what they could to help, the directors made every effort to safeguard the claims of the civil population for whom the infirmary exists. Thanks were extended to Mr. Scott Riddell, who kindly agreed to act as honorary superintendent when Dr. W. Sinclair was mobilised, also to Miss Edmondson, the matron, for her valuable services at this time. The chairman also congratulated all three senior surgeons of the infirmary, Mr. Riddell upon his services as Red Cross Commissioner for the North of Scotland, Professor J. Marnoch upon the distinction of C.V.O. conferred upon him by His Majesty the King, and Mr. H. M. W. Gray upon his appointment to the post of one of the consulting surgeons at the front.

KING MANOEL AND WOUNDED OFFICERS.—King Manoel is generously providing through the British Red Cross Society a home for wounded officers, and for this purpose Admiral the Hon. Sir Hedworth Meux, Naval A.D.C. to the King and Commander-in-Chief at Portsmouth, has lent his Brighton house. The house is situated at Kemp Town, commanding a fine sea view, and arrangements are being carried out with a view of receiving as many convalescent officers as it will accommodate. King Manoel and Sir Frederick Treves, on the occasion of a recent visit to the town, visited the Indian General Hospital at the Royal Pavilion and inspected the premises of the new hospital.

THE FRENCH RED CROSS.—A letter in another column from Dr. James Donelan explains the organisation of the London branch of the French Red Cross. On the initiative of the French Ambassador this branch of the French Red Cross Society has now been placed under the presidency of the Vicomtesse de La Panouse, the wife of the French Military Attaché. This branch will henceforward be the only representative in London of the union of the three Red Cross societies established in France. An honorary and an executive committee have been formed. The honorary committee is composed of Queen Alexandra, Monsieur Paul Cambon, the French Ambassador, the Duchess of Norfolk, the Duchess of Somerset, and many other influential people. The following constitute the executive committee:—President, Vicomtesse de la Panouse; vice-president, Madame Brasier de Thuy; treasurer general, Comtesse de Saint Seine (wife of the French naval attaché); secretary general, Madame Phalempin. The treasurer is Mrs. N. Lake, the honorary secretaries are Mr. P. A. Wilkins and Mr. C. J. Baker, and the medical referee is Dr. James Donelan. The committee's offices are at 25, Knightsbridge, London, S.W.

AN ENTERIC HOSPITAL FOR CALAIS.—The joint war committee of the British Red Cross Society and the Order of St. John of Jerusalem recently undertook to provide at Calais an enteric hospital of 156 beds for the exclusive use of Belgian soldiers. The complete hospital has now been built in this country and transported to Calais in the short period of three weeks, and it is being set up there by 100 workmen sent over from this country. The hospital consists of six wards of 26 beds each, and is completely equipped. It includes, in addition to the wards, separate nurses' accommodation, a dispensary, a disinfectant, a destructor, kitchens and orderlies' barracks, steam laundry, dining hall, and other necessary offices. Supplies of drugs have been despatched from the Red Cross Stores, 83, Pall Mall, together with sterilisers, disinfecting plant, beds and bedding, &c. The hospital and its equipment represent 500 tons of material. This was sent by rail to Dover by five special goods trains and transferred thence to Calais by special Admiralty transport boat. The workmen sent over to erect the hospital were all insured and inoculated, and special housing accommodation and feeding arrangements were made for them before their arrival. The planning and construction in so short a period of this complete hospital reflect much credit upon the stores department of the joint Red Cross committee.

THE AUTOMOBILE ASSOCIATION FRENCH AMBULANCE FUND.—Early in October last it came to the knowledge of the executive committee of the Automobile Association and Motor Union that while the British military authorities were being well supplied with motor ambulances, the French army was sadly lacking in this respect. An appeal was accordingly sent out in November asking members for (1) entire ambulances, (2) cars suitable for conversion into ambulances, and (3) subscriptions towards providing the necessary ambulance bodies, &c. The association then communicated with the Service de Santé de Gouvernement Militaire de Paris, and as a result, on Oct. 27th promised as a first instalment a free gift of 50 ambulances. The response to this appeal has been generous, 230 cars having been offered to the committee. Thirty-eight have already been sent to France, and the second contingent numbers 55. Nearly 1000 members unable to provide cars contributed cash subscriptions totalling over £6000. The cars as offered have been collected by road and rail from all parts of England, Scotland, Ireland, and Wales. The engineering department of the "A. A." has supervised the work of converting and equipping the vehicles for their employment on the battlefield. On Feb. 11th a luncheon was held at the Savoy Hotel to celebrate the despatch of these motor ambulances to France, and subsequently the 55 cars were inspected at Buckingham Palace by the King.

QUEEN'S UNIVERSITY OF BELFAST AND THE WAR.—A roll of honour, compiled by authority of the Senate, has just been published, giving a list of those connected with the University who have served their country in the war and of those who are still fortunately able to act in this way. Among the five killed in action there is one medical officer, Captain T. M. Phillips, R.A.M.C., who died from a shell injury received at Ypres.

BRIGHTON AND HOVE MEDICAL PREPARATIONS AGAINST AIR RAIDS.—Referring in our last issue to the medical preparations against possible air raids on London we stated that with the sanction of the military and police authorities the London scheme had now been elaborated and extended to include vulnerable places on the coast. We have received a copy of the very complete scheme organised by the borough councils of Brighton and Hove, which will bear the cost thereof. In these towns 29 dressing stations having telephonic communication have been established. The organised personnel consists of 78 out of 90 civilian doctors who have volunteered their services gratuitously, a staff of nurses, stretcher-bearers with stretchers from the Home Protection Brigade, and 320 boys from various boys' organisations to act as messengers, or cyclists. The medical man in charge of each dressing station is given authority to arrange the equipment of his station in accordance with his requirements. Each doctor is also supplied with emergency dressing packages. The medical men have been assigned to their allotted stations. Fourteen nursing homes have agreed to receive the surplus injured should they be in excess of those whom the hospitals can accommodate.

ENLARGEMENT OF THE SECOND EASTERN GENERAL HOSPITAL, BRIGHTON.—At the beginning of the war this hospital was mobilised with its arranged number of beds—namely, 520. Since then it has been gradually extended, and now has 1000 beds available. There are five blocks composing the hospital, three surgical and two medical. The former are as follows: The new Brighton and Hove Grammar School in the Dyke-road and the Howard Convalescent Home and St. Mark's Council School at Kemp Town. The medical blocks are at Stanford-road Council School and at Lewes-crescent, Kemp Town. The staff has been augmented, consisting now of about 30 medical and surgical officers. Several thousand patients have already been treated at the different branches, both men from the Expeditionary Force and men from the many large camps in the neighbourhood. There are four operating theatres, at all of which various operations are constantly being performed. A great number of these are on men who have not yet been to the front, but who require some operative procedure to fit them for active service.

LIVERPOOL DOCTORS AND ANTITYPHOID INOCULATION.—At a largely attended meeting of medical practitioners at the Liverpool Medical Institution last week the question of antityphoid inoculation in the army was discussed, and a forcible paper on the subject was read by Professor Ernest Glynn, of which an abstract was sent to the local press. The following resolution was proposed by Captain W. Permewan, R.A.M.C. (T.), and seconded by Lieutenant-Colonel Sir James Barr, R.A.M.C. (T.), and carried unanimously:—

This meeting of the Liverpool Medical Institution expresses its strong conviction that the time has come to make antityphoid inoculation compulsory in the British Army.

A WATER-STERILISING OUTFIT.—We have received from Messrs. Burroughs, Wellcome, and Co. specimens of tabloids of chlorinated lime and sodium thiosulphate together with solids of potassium iodide and starch. The whole forms an easily portable outfit for the certain sterilisation of water. The procedure is very simple. As a starting point 1 tabloid water steriliser (chlorinated lime) is dissolved in 10 gallons of water, the mixture being allowed to stand for 15 minutes. Then, to ensure that sufficient of the steriliser has been used, a test is made in the following way. A little of the water is placed in a cup or other vessel in which has been placed one soloid containing potassium iodide and starch. If a blue colouration occurs there is an excess of chlorine present and the work of sterilisation is complete. Otherwise another tabloid steriliser must be added until the presence of free chlorine is shown by the soloid potassium iodide starch test. The excess of chlorine is then removed by adding one tabloid of sodium thiosulphate for each tabloid of steriliser and the water becomes fit for drinking and palatable. This is a very ingenious and simple method and should be of the greatest value in a campaign.

It is reported by the Berne correspondent of the *Times* that Dr. Philipp Peck, head of the Austrian Army Medical Staff, has died from "spotted typhus."

Obituary.

ROBERT BURNET, M.Sc., M.B., CH.B. VICT., M.Sc.,
M.B., CH.B. LIVERP., D.P.H. BIRM.,
MEDICAL OFFICER OF HEALTH OF CORNWALL; LIEUTENANT-COLONEL,
ROYAL ARMY MEDICAL CORPS (T.).

Lieutenant-Colonel Robert Burnet, R.A.M.C. (T.) was killed in Devonshire recently by being thrown from his horse.

Robert Burnet received his professional education at University College, Liverpool. In 1897 he took the B.Sc. at Victoria University with first-class honours and a scholarship, in 1900 the M.B., B.Ch., and in 1901 the M.Sc. In 1902 he was appointed district medical officer of the parish of Birmingham. In 1904 he was admitted to the M.Sc., M.B., and B.Ch. of Liverpool University, and in 1908 he took the D.P.H. at the University of Birmingham. Three months later he was appointed medical officer of health of the county borough of Bury, Lancs., and shortly afterwards superintendent of the large combined isolation hospital there. He developed the work of inspection instituted by his predecessor, Dr. Brindley, and assisted in the establishment of a municipal hospital for tuberculosis. In 1910 he was appointed county medical officer of health of Cornwall. Dr. Burnet took a keen interest in military medical matters. In 1908 he joined the R.A.M.C. (T.) at Handsworth, Staffs., was transferred on going to Bury to the Lancashire Fusiliers, and was again transferred on going to Cornwall, when he was promoted to the rank of lieutenant-colonel.

Dr. A. H. Bygott, of Bury St. Edmunds, writes: "I first met Robert Burnet in 1902, soon after his appointment as district medical officer of the parish of Birmingham, and have been very intimately connected with him ever since. The appointment was remarkable, as the result of a determined attempt by an enlightened board of guardians to organise their outdoor medical department on the best possible lines by availing themselves of whole-time officers at a substantial salary. Dr. Burnet took an especially keen interest in this work and did his best to develop it, but that he felt he had undertaken a practically impossible task is shown by his evidence before the Royal Commission on the Poor-laws, in 1907, in which he suggested that the medical services controlled by the boards of guardians should be transferred to the public health authorities. This policy was adopted in the Minority Report, and he continued to support it on every available occasion. During Dr. Burnet's first year of office as medical officer of health of Cornwall there was a very serious epidemic of poliomyelitis in the county, in the investigation of which he proved himself indefatigable, but in connexion with which he sustained a very serious blow. His only son, a brilliant boy who was destined for the navy, fell a victim to this disease, and though his life was spared after a very serious illness, he was left hopelessly paralysed. Dr. Burnet's early career was a brilliant one. He was a man of varied talents, and possessed no mean gifts as an artist and musician, though the strenuous life that he led in latter years left him scant leisure for them. He was singularly alert, and threw himself with ardour into every detail of whatever he undertook. He was also one of the most conscientious men that I have ever known. A host of friends will mourn their loss, and the deepest sympathy will be felt for his young widow and his children."

PATRICK JOSEPH MACNAMARA, M.D. R.U.I.,
F.R.C.S. IREL.,
CHAIRMAN OF THE IRISH MEDICAL COMMITTEE.

THE death of Dr. Patrick Macnamara, of Kilmallock, co. Limerick, occurred on Feb. 4th after a few days' illness. He was one of the most representative of Irish country doctors, and his unanimous election on two occasions as chairman of the Irish Medical Committee was a striking proof of confidence in his ability and fairness.

Dr. Macnamara was educated at Cork and Dublin, and became M.D. of the Queen's University and Licentiate of the Royal College of Surgeons in 1872. Fifteen years later he proceeded to the Fellowship of the College. His entire professional life was spent in his native county of Limerick, where for many years past he was a justice of the peace for the county and medical officer of the Kilmallock workhouse. While undertaking all the arduous duties of a country practitioner in Ireland he spared no pains to keep himself abreast of knowledge in medicine, surgery, and midwifery, and in his workhouse hospital he did surgical work of excellent quality. He acquired a reputation in many branches of practice which made his opinion much in request as a consultant and helped him to occupy an important place in public esteem in the south of Ireland, an esteem to which his high personal character contributed largely.

He was for many years an active member of the council of the Irish Medical Association. When, in 1913, the Conjoint Committee, which had up to that time represented Irish medical interests in reference to the National Insurance Act, was dissolved, Macnamara was chosen chairman of the newly constituted Irish Medical Committee. The moment was a critical one for the profession, for the committee contained some very discordant elements, and if a split had occurred all hope of unity in the profession would have vanished. But Macnamara, by his forbearance, tolerance, perfect courtesy, and occasional humour, kept in good temper the meetings over which he presided, and thus placed the profession of Ireland under a debt to him.

JOHN DEE SHAPLAND, M.R.C.S. Eng., L.S.A.

By the recent death of Mr. John Dee Shapland Exmouth has lost an old resident who witnessed its growth from a comparatively small size to its present dimensions and who was for many years actively engaged in general practice there, being district medical officer from 1891 to 1905.

John Dee Shapland was born at North Molton in North Devon on Nov. 30th, 1839, and was educated at South Molton and Axminster. On leaving school he was articled to Dr. Forrester at Barnstaple, where he remained but a very short time. He then went to University College Hospital, when the medical staff included Jenner, John Erichsen, Sharpey, Quain, and Ellis. After qualifying as M.R.C.S. in 1861 he was for a time assistant to a practitioner in Watford, and later settled in general practice at Thornton Heath, becoming medical officer for the union of Croydon. He left that neighbourhood for North Devon in 1882, settling first at Downrew, near Bishop's Tawton, and removing thence to Burnside, Withycombe, Exmouth, where he resided until his death. A keen sportsman and horticulturist, he was also a good practitioner, and to the end of his working life kept himself well abreast of modern scientific developments.

MICHAEL MCHUGH, M.A., M.D. DUB.,
L.R.C.P. & S. IREL.,

PROFESSOR OF MATERIA MEDICA IN THE SCHOOL OF THE ROYAL
COLLEGE OF SURGEONS IN IRELAND.

THE death of Professor McHugh occurred quite unexpectedly on Jan. 8th. He had been about his work as usual on the 7th, but was found dead in bed next morning, death having apparently taken place some hours previously. He was only 58 years of age.

Michael McHugh was educated in Trinity College, Dublin, and afterwards at Berlin and Vienna. He was for many years one of the visiting physicians to St. Vincent's Hospital and the Cork-street Fever Hospital, Dublin, and since the death of Sir George Duffey he had been professor of materia medica and therapeutics in the School of the Royal College of Surgeons. He had been an external examiner in medicine at the University of Dublin, and examiner in medical jurisprudence at the Royal University of Ireland. He had a high reputation as a scientific physician, and although of a retiring disposition, was held in great regard by his pupils and colleagues.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians of London on Jan. 28th and of the Council of the Royal College of Surgeons of England on Feb. 11th diplomas of L.R.C.P. and M.R.C.S. were conferred respectively upon 114 candidates (including three ladies) who have passed the Final Examination in medicine, surgery, and midwifery of the Conjoint Board and have complied with the requisite by-laws. The following are the names and schools of the successful candidates:—

Christie Muthuswamy Anthony, Guy's Hospital; Mary Elizabeth Ashton, Calcutta, Manchester University, and Royal Free Hospital; Errington Atkinson, London Hospital; Geoffrey Lewis Atwater, Cambridge University and Guy's Hospital; James Dorrington Bangay, St. Bartholomew's Hospital; Percy William Barnden, London Hospital; Burgess Barnett, St. Bartholomew's Hospital; Kanshi Ram Batra, University College Hospital; Owen Albert Beaumont, Cambridge University and London Hospital; Arthur Leslie Blunt, St. Thomas's Hospital; Harold Esmond Arnison Boldero, Oxford University and Middlesex Hospital; Johannes Willem Bouwer, London Hospital; Leonard Graham Brown and Charles Milwyn Burrell, Oxford University and London Hospital; Harold George Bywater, Liverpool University; Rowland Burnell Campion, Guy's Hospital; Maurice Hereward Cane, Cambridge University and St. Bartholomew's Hospital; Dorothy Chick, Royal Free Hospital; William King Churchouse, Charing Cross Hospital; Joseph Woods Clayton, Adelaide University and London Hospital; Philip Cyril Powter Cloake, London Hospital; William Lonsdale Cockcroft, Manchester University; Stephen Walter Coffin, Guy's Hospital; Dora Challis Colebrook Royal Free Hospital; Ernest James Cooke, Guy's Hospital; Edward Charles Cunningham, Cambridge University and St. Bartholomew's Hospital; Eric David Despard Davies, Cambridge University and St. Mary's Hospital; Alexander Decimus d'Avray, University College Hospital; George Stanley Deane and Cedric Roland Denny, London Hospital; Charles Wilmot Dias, Ceylon Medical College and St. Mary's Hospital; Herman Gerald Dresing, Copenhagen University and Guy's Hospital; Albert John Kingman Drew, Guy's Hospital; Sidney Ernest Elphick, St. Mary's Hospital; Ahmed Zaki Elsayed, Cairo and London Hospital; James Fanstone, London Hospital; Harry Hope Fisk, St. Mary's Hospital; George Muir Foster, Bristol University and University College Hospital; Lewis Salisbury Fry, Cambridge University and Guy's Hospital; Alec Terris Gibb, Manchester University; John Wesley Gilbert, Bristol University; Edmund Douglas Granger, St. Thomas's Hospital; Stanley Willoughby Green, Leeds University; Norman Grellier, Charing Cross Hospital; Herbert Stuart Griffith, St. Bartholomew's Hospital; Douglas Noel Hardcastle, St. Mary's Hospital; William Theodore Hare, Cambridge University and St. Thomas's Hospital; Frank Cecil Harrison, Sheffield University; Hugh Granville Hockridge, St. Bartholomew's Hospital; Lancelot Horsley, Guy's Hospital; Ifan Septimus James, University College Hospital; William Baly Jepson, St. Bartholomew's Hospital; Cyril Oscar Howe Jones, Middlesex and St. Thomas's Hospitals; Dadabhai Nowroji Kalyanvala, Bombay University and University College Hospital; Charles George Gordon Keane, St. Mary's Hospital; Felix Edward Ricardo Laborda and Stephen Abraham Liebson, Guy's Hospital; Neville Hood Linzee, London Hospital; Percy East Lones, University College Hospital; William Francis MacAlevy,

St. Mary's Hospital; Cecil Granville McClymont, Guy's Hospital; James McDonnell, London Hospital; Edmund Claud Malden, Cambridge University and King's College Hospital; George Allan Maling, Oxford University and St. Thomas's Hospital; Robert Charles Matson, Guy's Hospital; Eric Spanton Mawe, Cambridge University and St. Bartholomew's Hospital; Stanley Howard Miles, Cambridge University and St. Thomas's Hospital; Donald Samuel Eccles Milligan and William Hubert Milligan, St. Thomas's Hospital; Arthur Daniel Morris, University College, Cardiff, and University College Hospital; Herbert Guy Moser, St. Bartholomew's Hospital; Drevor Frederick Acton Neilson, Cambridge University and St. Thomas's Hospital; Kenneth Montague Nelson, St. Mary's Hospital; Charles Cyril Okell, Cambridge University and St. Bartholomew's Hospital; James Hales Parry, Cambridge University and Guy's Hospital; Owen Guy Parry-Jones, Oxford University and Guy's Hospital; Sachchidananda Hosen Paul, Calcutta University and Charing Cross Hospital; Hugh Ley Puxon Peregrine, King's College and Guy's Hospitals; Danwattage Don Philip Perera, Ceylon Medical College and University College Hospital; Haydn Peters, Charing Cross and Middlesex Hospitals; George Robinson Pirie, Toronto University; Kenneth Playfair, Cambridge University and King's College Hospital; Guy Algernon Pratt, Guy's Hospital; Oliver Beakley Pratt, Oxford University and St. Bartholomew's Hospital; Noel Parry Price, Guy's Hospital; Wilfrid Raffle, Cambridge University and London Hospital; Reginald Thompson Raine, Cambridge University and St. Thomas's Hospital; William Leonard Elliot Reynolds, Guy's Hospital; William Kenneth Armstrong Richards, Bristol University; James Albert Robinson, St. Bartholomew's Hospital; Alan Filmer Rook, Guy's Hospital; Harold Arthur Rowell, St. Thomas's Hospital; Arthur Paul Saint, Cambridge University and London Hospital; Noel Humphrey Wykeham Saw and Roland Sells, Guy's Hospital; Henry Richard Sheppard, St. Thomas's Hospital; William Sowerby, University of New Zealand and Middlesex Hospital; Harold Douglas Livingstone Spence, Queen's University, Kingston, and St. Bartholomew's Hospital; Alan Edward Staffurth, Cambridge University and St. Thomas's Hospital; William Fletcher Stiell, St. Thomas's Hospital; Lionel Frederick Strugnell, St. Bartholomew's Hospital; Charles Putnam Symonds, Oxford University and Guy's Hospital; Gordon Stuart Terry, Bristol University; Edgar William Todd, Cambridge University and St. Thomas's Hospital; Myles Denison Boswell Tonks, London Hospital; Oscar Ramsay Unger, University College Hospital; Algernon Randolph Upton, Birmingham University and St. Bartholomew's Hospital; Cedric Norman Vaisey, Bristol University; Joseph Stephen Wallace, University College Hospital; Philip Pennefather Warren, London Hospital; Robert Harvey Williams, St. Bartholomew's Hospital; Samuel Wilson, Guy's Hospital; Frank Hamersley Woods, St. Bartholomew's Hospital; and Henry Wardel Snarey Wright, University College Hospital.

Diplomas in Public Health were also conferred upon the following six candidates:—

Kishori Lal Chandry, Lahore Medical College and University College; Noormahomed Kasembhai Chohan, Bombay and Cambridge Universities; Herbert William Frankhauser, Melbourne University and Royal Institute of Public Health; Thomas Marlin, Glasgow University and University College; Lucy MacBean Ross, Glasgow University and University College; and Andrew James Shinnie, Aberdeen University and University College.

UNIVERSITY OF OXFORD.—The examination for the Diploma in Ophthalmology will commence on July 19th, and for the Diploma in Public Health June 1st. The Board of the Faculty of Medicine gives notice that the Certificates in Anæsthetics (No. 11), Practical Pharmacy (No. 12), and Practical Pharmacology (No. 13) will be accepted on the old forms (see Examination Statutes, p. 232, ed. 1914) at all examinations held before Michaelmas Term, 1916. At the examination in Michaelmas Term, 1916, and afterwards only the new forms of certificate will be accepted.—The following medical degrees have been conferred:—

D.M.—H. P. Newsholme, Balliol.
B.M.—G. W. Carrington, Keble (*in absentia*).

PHARMACEUTICAL SOCIETY.—At the February meeting of this society two useful papers recording the results of experiments conducted in the society's research laboratories were communicated. In one of these Professor H. G. Greenish dealt with the problem of the discolouration of sodium salicylate solution by alkalies, a subject which, with Mr. A. E. Beesley as collaborator, he has recently investigated. The fact that a solution of sodium salicylate to which sodium bicarbonate has been added gradually assumes a brownish colour, deepening to dark brown or nearly black, is known to most medical practitioners and to all pharmacists, but it has never been definitely known to what this is due. Mixtures containing these two salts are frequently prescribed, and the matter is therefore of practical interest. It would seem that the discolouration is due to the oxygen of the air acting on the salicylate in the presence of sodium sesquicarbonate, and that the addition of about a grain of sodium sulphite or bisulphite to an ordinary 8 oz. mixture produces a marked preservative effect. Apparently there can be no possible objection to the use of this expedient. In the other paper Professor H. L. Smith

dealt with acetylsalicylic acid, which is one of the drugs that were formerly manufactured almost exclusively in Germany, but are now being made in this country by several manufacturers. Doubt has been expressed by some medical men and others as to the identity of the various makes of acetylsalicylic acid, and especially as to their identity with aspirin, and statements are sometimes made that one sample or another causes secondary effects, such as irritation of the stomach. Except that aspirin differs somewhat in appearance from the acetylsalicylic acid manufactured in Great Britain (aspirin crystals occurring in glistening flakes whilst the others appeared needle-like in form) most of the samples examined were identical with aspirin—that is to say, their chemical composition was the same. The question of the crystalline character is apparently of no particular importance, and Professor Smith's conclusion is that acetylsalicylic acid may be obtained without difficulty, chemically pure, from more than one source, but that, as with other chemicals, indifferent and impure makes are on the market, and therefore the same discrimination should be used in buying it as with other drugs.

THE Mayor of Sunderland has received from a number of medical practitioners of that borough upwards of £230 towards the local contribution to the Prince of Wales's National Relief Fund. This sum represents fees received for the medical examination of recruits.

TYPHUS FEVER IN LONDONDERRY.—Eleven cases of typhus fever have been notified, of which six occurred in one family. The origin of the outbreak has been traced to a "wake" held on Dec. 19th, 1914, at which crowds of persons attended, and all those suffering from typhus fever, with the exception of the district nurse, were present. Every precaution has been taken to stamp out the epidemic, but in addition to other causes of the disease, the district in which the outbreak occurred is almost uninhabitable in consequence of its bad sewerage.

DONATIONS AND BEQUESTS.—The late Miss Jane Osborn has left by will £500 each to the Great Northern Central Hospital and the Central London Ophthalmic Hospital; part of the residue of the estate will go to the Cancer Hospital, Fulham.—By the will of the late Mr. George Hepworth, of Castleford, Yorks, the Clayton Hospital, Wakefield, will receive £500 and the Wakefield City Deaf and Dumb Society £250.—Two donations have been intimated to the Dundee Infirmary, one of £500 from Mr. Andrew Scott with the proviso that only the income should be used and that two cots in the infirmary should be named, and the other of £1000 North British Railway Stock (Ordinary Preference) from Mr. J. J. Watson, Broughty Ferry, the interest only to be used.

UNIVERSITY OF LONDON.—At the last meeting of the Senate the titles of professor and reader in the University of London were conferred upon various teachers of the University on the recommendation of the respective boards of advisers. Mr. J. E. S. Frazer, St. Mary's Hospital, was made professor of anatomy; Dr. T. M. Lowry, Guy's Hospital, professor of chemistry; Dr. W. J. R. Simpson, King's College, professor of hygiene and public health; Mr. Major Greenwood, jun., Lister Institute, reader in medical statistics; Dr. R. G. Hebb, Westminster Hospital, reader in morbid anatomy; Dr. R. T. Leiper, London School of Tropical Medicine, reader in helminthology; Dr. F. S. Locke, King's College, reader in physiology; Dr. H. E. Roaf, St. Mary's Hospital, reader in physiology; Dr. Otto Rosenheim, King's College, reader in biochemistry; Mr. J. Henderson Smith, Lister Institute, reader in bacteriology; Dr. H. M. Turnbull, London Hospital, reader in morbid anatomy; and Dr. J. S. Edkins, Bedford College, reader in physiology. Dr. E. Barclay-Smith was appointed to the University professorship of anatomy at King's College, and Dr. E. P. Cathcart to the University professorship of physiology, tenable at the London Hospital Medical College. The report of the professor of protozoology (Professor E. A. Minchin) for the year ended June 30th, 1914, was received and forwarded to the Colonial Office. A grant of £50 was made out of the Dixon fund to Mr. J. A. Gardner, University of London Physiological Laboratory, for researches into lipid substances. The following additions were made to the Faculty of Medicine: Mr. R. C. Acland, Professor E.

Barclay-Smith, Professor E. P. Cathcart, Mr. R. W. Collum, Mr. T. J. Evans, Mr. R. A. Greeves, Dr. P. Haas, Dr. R. C. Jewesbury, Dr. E. Macnamara, and Mr. C. A. Pannett. It was announced that the Chancellor had reappointed Sir James Barr, M.D., to be his representative upon the Court of Governors of the University of Liverpool. University medals in connexion with the M.D. examination have been awarded to J. N. Mehta (medicine) and J. C. Woods (mental diseases), of the London Hospital.

Dr. Andrew Hunter, a graduate of Edinburgh University, has been recently appointed to the chair of pathological chemistry in the University of Toronto, to succeed Professor J. B. Leathes, who resigned some months ago to accept an appointment in the University of Sheffield. Dr. Hunter was associated with Professor E. A. Schaefer for three years, then went to Cornell University, Ithaca, New York, as associate professor of biochemistry. Subsequently he was appointed biochemist in the United States Public Health Service at Washington, D.C., whence he came to Toronto.

Dr. A. Wood Smith, late physician to the Glasgow Royal Infirmary, has been appointed honorary consulting physician to that institution.

MEDICAL MAGISTRATE.—Dr. Richard Emmett has been placed on the Commission of the Peace for the county borough of Portsmouth.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Naval Medical Compassionate Fund Bill.

A BILL "to make further and better provision with regard to the Naval Medical Compassionate Fund" has been introduced into the House of Commons by Mr. G. LAMBERT, Civil Lord of the Admiralty. It was read a first time.

The text of the Bill has been printed. It is in the following terms:—

Whereas under an Order in Council dated the thirteenth day of August eighteen hundred and seventeen the Naval Medical Supplemental Fund Society was established for the relief of widows of medical officers in the Royal Navy: And whereas it was provided in that Order that if any bequest or donations should be made in favour of the society, the principal amount thereof should be reserved separately as a compassionate fund, and that the interest should be distributed, at the discretion of the President and Court of Directors of the society, among the orphans of deceased members thereof, and that each member of the society, on his promotion or on his appointment to any permanent civil situation, should contribute to the compassionate fund a fee equal to one week's pay: And whereas in pursuance of the Naval Medical Supplemental Fund Society Winding-Up Act, 1861, the society has been wound up, but that Act provided that notwithstanding the winding-up of the society the above-mentioned compassionate fund should continue, but on a voluntary instead of a compulsory basis, and enacted that the interest thereof should be distributed among the orphans of those members of the society who had died and the orphans of those naval medical officers who had theretofore contributed or who should thereafter voluntarily contribute any such fee as aforesaid to the compassionate fund, but that no person should thereafter be compelled or liable to pay a fee to the compassionate fund: And whereas the said Act made no provision for the future management of the said fund, but the said fund has in fact remained under the management of a body consisting of the Secretary to the Admiralty, the Medical Director-General of the Navy, and certain medical naval officers who have contributed to the fund, and now consists of the sum of ten thousand six hundred pounds two and a half per centum consolidated stock: And whereas it is expedient to make provision for the management of the said fund and to alter the terms of contribution thereto and the nature of the benefits therefrom in manner hereinafter appearing:

Be it therefore enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. (1) His Majesty may by Order in Council provide—
(a) for constituting new trustees of the said fund and for vesting the fund in such trustees; (b) for filling vacancies

in the office of trustee and for vesting the fund in the trustees for the time being without conveyance or assignment; (c) for vesting the management of the fund, the determination of the persons to receive benefits therefrom, and the distribution thereof amongst such persons, in such body as may be determined by the Order, being a body representative of the naval medical service, either with or without the addition of representatives of the Admiralty; (d) for enabling all persons who are or who may hereafter become naval medical officers, or who may at any time have been naval medical officers, to become subscribers to the fund; (e) for determining the terms of subscription and the manner and time of payment thereof; (f) for making eligible to benefits from the fund the widows and orphans of all persons who at the time of the making of the Order may have contributed to the fund, and, subject to such conditions as may be prescribed by the Order, of persons who may after that date have become subscribers to the fund; and the Order may contain any incidental, consequential, or supplemental provisions which may appear to be necessary or proper for the purposes of the Order. (2) An Order in Council under this Act may be altered or revoked by a subsequent Order in Council.

2. This Act may be cited as the Naval Medical Compensate Fund Act, 1915.

A schedule to the Bill provides for the repeal of certain provisions in existing enactments.

Report of the Central Midwives Board.

The report on the work of the Central Midwives Board for the year ended March 31st, 1914, has been issued. It is therein stated that the Midwives Roll on March 31st, 1914, contained the names of 37,290 women, an increase for the year of 1727. This latter figure shows a reduction of 211 in the numbers added to the roll during the year, as compared with the previous year. Of the total, 16,989 have passed the Board's examination and 9583 have been admitted to the roll in virtue of prior certification under Section 2 of the Midwives Act. The total number of trained midwives amounts to 26,572 and of untrained to 10,718, the percentages being 71.3 and 28.7 respectively. At the same period last year the percentages were 69 and 31 respectively. The proportion of trained midwives increases steadily as the names of the untrained women disappear from the roll, but it must be remembered that a large number of the former, which may be estimated at not less than 60 per cent., do not practise as midwives in England or Wales. As far as can now be estimated the proportions of trained and untrained women in actual practice are about equal. Last year, of those practising as midwives, the untrained exceeded the trained.

HOUSE OF COMMONS

WEDNESDAY, FEB. 10TH.

Vaccination and Small-pox.

Mr. YEO asked the President of the Local Government Board whether he was aware that more than half the children born in England and Wales were now escaping vaccination and that small-pox had been almost entirely absent since the passing of the Vaccination Act, 1907; and, if so, whether he would consider the desirability of arranging that vaccination should now be entirely voluntary.—Mr. HERBERT SAMUEL replied: The statements in the first part of the question are substantially correct, except that there was no marked change in the number of deaths from small-pox following upon the passing of the Vaccination Act, 1907. It is not the intention of the Government to introduce legislation on the subject.

St. John Ambulance Brigade.

Replying to Mr. THOMAS, Mr. H. BAKER (Financial Secretary to the War Office) said: All men of the St. John Ambulance Brigade who are employed in military hospitals are enlisted for the Royal Army Medical Corps and are treated for pay and allowances, including separation allowance, in all respects as regular soldiers.

Drug Accounts Regulations in Scotland.

Mr. PRINGLE asked the Prime Minister whether his attention had been called to an interdict granted by Lord Anderson in the Court of Session on Feb. 2nd on the application of the Glasgow Insurance Committee ordaining the Scottish Insurance Commissioners to cancel any directions given by them for laying the National Health Insurance (Drug Accounts Committee) Regulations (Scotland), 1914, before both or either of the Houses of Parliament; whether the application was made and granted on the ground that no petition against the Order was possible in this House because the Government was to occupy the whole time of the House; whether under the Order of Feb. 3rd the opportunity to petition against Orders and Regulations laid upon the table of the House had been taken away; and, if so, whether the Government would propose an amendment of the Order of Feb. 3rd whereby the right to petition against Orders and Regulations laid upon the table would be restored.—Mr. ASQUITH furnished the following written reply: My

attention has been called to the matter referred to. It must not be taken to accept the statements made in the second branch of the question, but the grounds on which the application was made are, I believe, accessible to my honourable friend. As under the Order of Feb. 3rd, no opportunity would arise of discussing petitions against such Orders and Regulations, the Government will endeavour to make some arrangement that time should be given when discussion is necessary and desirable.

Health of the Army.

Speaking in the course of the debate on army estimates, Mr. TENNANT (Under Secretary for War) made reference to the service rendered to the country, and particularly to the War Office and the Royal Army Medical Corps, by the British Red Cross Society, the St. John Ambulance Association, and voluntary agencies generally all over the country.

He should like to endorse the eulogy which had been passed on them by the noble lord the Member for Hitchin (Lord Robert Cecil). He (Mr. Tennant) had tendered his acknowledgment of the admirable manner in which they had helped in every possible way. It was a pleasing fact that the St. John Ambulance Association and the British Red Cross Society, which were previously acting in rivalry the one with the other, were now working under a joint committee, which tended, of course, to more efficient work being achieved by both. The question had been raised of the evacuation of hospitals at Boulogne and elsewhere, and it had been suggested that the wounded had been moved too early from these hospitals in order to make room for others. That was a real difficulty. The War Office authorities were anxious that the sick and wounded should be left in the base hospitals as long as possible, and so much so was that the case that if he mentioned the fact that recently only 700 odd beds were vacant at Boulogne, he thought that it would be accepted as proof of the excessive care taken to keep the sick and wounded in the base hospitals and to prevent their removal too early. (The remarks of the right honourable gentleman on the subject of the inoculation of the troops against typhoid were summarised in last week's issue of THE LANCET.)

Mr. W. LONG expressed regret at the delay of the Government in coming to a decision on the question of making inoculation compulsory in the army. For future recruits inoculation ought to be made compulsory.

THURSDAY, FEB. 11TH.

Recoveries of Wounded Soldiers.

Sir GEORGE SCOTT ROBERTSON asked the Prime Minister how many out of the 104,000 casualties in the Expeditionary Force had now returned to duty.—Mr. ASQUITH replied: I fear that it would be contrary to the public interest to give exact figures, but my honourable friend and the House will be glad to know that about 60 per cent. of the wounded recover and become fit for service.

Treatment of Nerve Strain amongst Soldiers

Mr. DUNCAN MILLAR asked the Under Secretary for War whether the Red Cross military hospital which had been opened in Lancashire for the reception of uncertifiable soldiers suffering from nerve strain was solely under War Office control, or whether it was visited by Lunacy Commissioners and under lunacy administration.—Mr. TENNANT answered: The hospital referred to is an exclusively military hospital, and the reception, care, and discharge of the soldiers admitted are under the sole control of the War Office. The soldiers are not certified and are not under lunacy jurisdiction. The premises, however, are the property of the Board of Control, and some members of the Board visit the institution from time to time in order to supervise such matters as supplies, heating, repairs, and the maintenance of the premises, but they in no way concern themselves with the treatment of the patients.

Non-inoculated Soldiers.

Mr. TICKLER asked the Under Secretary for War whether he was aware that men who had joined Kitchener's Army, now in training at Brocklesby, had been informed that unless they consented to be inoculated against typhoid they would not be allowed to proceed to the front with their companions; and whether this was in accordance with the instructions of the War Office.—Mr. TENNANT answered: No such circumstances as the honourable gentleman describes have been reported. I stated in an answer to the Member for Haggerston on Nov. 23rd the position of inoculated men as regards the probability of their proceeding to the front. The matter remains as it then stood.

The Rum Ration.

Mr. CURRIE asked the Under Secretary for War whether rum was issued as a ration to troops at the front; if so, under what conditions it was issued; whether young men were forced in any circumstances to take rum as a ration; whether he was aware that there was a popular belief to this effect; and, if so, whether he would cause public contradiction of the belief to be made in view of its prejudicial effect upon recruiting.—Mr. TENNANT said in reply: I would

refer the honourable Member to the full answer which I gave on Nov. 16th. I think the true state of the case should be sufficiently clear, but I may repeat that men are not forced to take rum as a ration.

Mr. CURRIE: Would the right honourable gentleman be good enough to communicate a copy of his answer to Sir Thomas Barlow, the President of the Royal College of Physicians, who, if correctly reported in the *Times* of the 9th inst., entertains an extraordinary conception?—Mr. TENNANT: Yes, Sir, I shall be very glad to do so.

Prevention of Dope Poisoning in Aircraft Factories.

Mr. ROWLANDS asked the Under Secretary of State for the Home Department whether he received a report of the inquest held at Crayford on Jan. 8th in connexion with the death from dope poisoning of a young woman employed in varnishing the wings of aeroplanes; whether any similar cases had occurred; and whether measures had been successfully taken to ensure the safety of the workers using dope.—Mr. CECIL HARMSWORTH answered: Several cases of this poisoning occurred at one or two aircraft factories towards the end of last year, and at the Home Secretary's request a full investigation was made by Dr. Willcox, senior analyst to the Home Office, and Dr. Legge, medical inspector of factories. Their inquiries showed that the poisoning was caused by the fumes given off by the varnish, and could be prevented by the installation of a suitable system of ventilation which would effectually carry off the fumes. Steps were immediately taken in concert with the Admiralty and the War Office to secure the provision of effective means of ventilation in every aircraft factory where the dope is being used, and there is every reason to believe that these measures will be successful. No further case of poisoning has been reported since the one referred to by my honourable friend.

Mr. ROWLANDS: Are the authorities thoroughly well satisfied that the precautions taken will secure the safety of the lives of those engaged in this occupation of varnishing, and will there be an official report of the examination and inquiry?—Mr. CECIL HARMSWORTH: I understand that the authorities are thoroughly satisfied with the precautions now being taken.

Medical Inspection of School Children.

Sir W. BYLES asked the President of the Board of Education whether, in accordance with Section 13 of the Education (Administrative Provisions) Act, 1907, and Section 3 of the Employment of Children Act, 1903, he would at once direct all rural education authorities to provide for the medical inspection of all children leaving school for agricultural employment and direct them to prepare and serve on the employer of each child such certificate as was contemplated by the Acts cited and justified by the condition of health and education of the child; and whether he would order that the full details of each case should be immediately reported to the Board of Education and publish them in a Parliamentary paper weekly during the continuance of the war.—Mr. J. A. PEASE said in reply: Provision is already made in the code for the medical inspection of all children after reaching the age of 12, and no facts have been brought to my notice which would justify the imposition upon all local education authorities of such an addition to the work of school medical service as my honourable friend suggests. Any inquiry as to the Employment of Children Act, 1903, should be addressed to the Home Secretary.

Mr. W. THORNE: What happens when children leave the school below the age of 11? Is there any medical inspection then?—Mr. PEASE: Not if they leave at 11, but under the Robson Act there should only be a partial exemption at 11. There ought to be two medical inspections before the age of 11. If they leave at 11 they may escape the third or final medical inspection, which takes place at the age of 12.

Cases of Diphtheria.

Mr. FELL asked the President of the Local Government Board whether his attention had been called to the numerous cases of diphtheria which were occurring in various parts of the country; whether he was making inquiry into the causes of this outbreak; and whether he proposed to issue any instructions dealing with the matter.—Mr. HERBERT SAMUEL replied: Although in the last quarter of 1914 the number of cases of diphtheria was somewhat in excess of that for 1913, I am glad to state that the number of cases notified in England and Wales during the first five weeks of this year is about 1000 less than the number notified in the corresponding period last year. Returns of notified cases are received weekly from each district. These are examined, and it is a matter of routine practice in my department to call for special reports on outbreaks, and if necessary to direct a medical inspector to make a local investigation.

Mr. FELL: Is it not the case that there have been numerous outbreaks in some places, and have not a good many deaths occurred during the past few weeks?—Mr. H. SAMUEL: I am informed that the cases of diphtheria are distributed over a

very large number of areas, and that there have been few considerable outbreaks in any particular localities.

Royal Commission on Sewage Disposal.

Replying to Sir J. YOXALL, Mr. H. SAMUEL said: The final report of the Royal Commission on Sewage Disposal has now been signed and will be issued shortly.

MONDAY, FEB. 15TH.

Diseases amongst the Troops.

In reply to Mr. ROWLANDS and Mr. W. THORNE, who asked for particulars as to the cases and deaths among the Expeditionary Force from disease since the outbreak of war, Mr. TENNANT said that he would furnish them with a return on the subject. It is as follows:—

Return showing the Number of Cases and Deaths amongst the Expeditionary Force and the British Troops in the United Kingdom owing to Certain Diseases, from August 1st, 1914.

		Typhus fever.	Typhoid fever.	Cholera.	Small-pox.	Scarlet fever.	Diphtheria.	Measles.	Dysentery.	Pneumonia.	Cerebro-spina meningitis.
Expeditionary Force. ¹	Cases	0	625 ⁴	0	=	196	*	175 ³	*	*	*
	Deaths	0	49 ⁴	0	=	4	=	2 ³	=	*	*
British troops in the United Kingdom. ²	Cases	0	262	0	1	1379	783	1045	215	1508	62
	Deaths	0	47	0	0	22	6	65	1	301	26

¹ The figures in this class include cases and deaths up to Feb. 11th, 1915.

² The figures in this class include cases and deaths up to Jan. 31st, 1915.

³ These figures include Indian troops—cases 5, deaths 0.

⁴ These figures include Indian troops—cases 25, deaths 4.

* Returns for these diseases are not at present available.

There have been no cases of cholera or of typhus either in the Expeditionary Force or amongst the British troops in the United Kingdom.

Inoculation in the Army.

Replying to Mr. PETO, Mr. TENNANT said that he was not in a position to announce any change of policy with reference to the inoculation against typhoid fever of officers and men in the army, but he would like to inform the House that 97 per cent. of the 29th Division had been inoculated.

The Enlistment of Medical Students.

Mr. MCCALLUM SCOTT asked the Under Secretary of State for War whether he was aware that the calling out of numbers of medical students in the Territorial Force and their enlistment in other forces were likely to result in a shortage of doctors at an early date, to the injury both of the nation and of the army; whether since this fact became known many medical students had been willing to return from the army to the universities in order to qualify as medical practitioners at the earliest possible date; and whether the Secretary of State was prepared to permit such persons to resume their medical course.—Mr. TENNANT replied: Arrangements have been made for the return to their professional studies of medical students serving in medical units of the Territorial Force. Students in their final year of study who have only their final examinations to pass may also be released from the combatant corps if they apply.

TUESDAY, FEB. 16TH.

Medical Officers of the Territorial Force.

Mr. ROBINSON asked the Under Secretary of State for War whether, in view of the fact that medical men fresh from the schools received 24s.—more than a major's pay—whilst medical officers who had for years been training with the Territorial Force and had in many cases left large practices received only the pay of their rank and neither the allowances granted in the field, the £60 gratuity at termination of the war, nor prospect of pension, he would cause inquiry to be made with a view to more equitable treatment being given to the more experienced officers.—Mr. TENNANT answered: As I have already explained, it may be found necessary to give special rates to officers commissioned on emergency, but there is no intention of making this universal. I should add that a major of the Royal Army Medical Corps receives 28s. a day in pay and field allowance, while the medical officer specially commissioned receives 24s. inclusive of all cash allowances.

WEDNESDAY, FEB. 17TH.

Frost-bite amongst the Troops.

Mr. SANDERSON asked the Under Secretary of State for War whether he could state the number of cases of frost-bite among the troops of the Expeditionary Force; whether any, and if so how many, waterproof stockings or trench-waders

had been furnished to such troops; and whether any oilskin coats to wear with the same had been supplied in place of the usual army greatcoats.—Mr. TENNANT said in reply: The total casualties from frost-bite to Jan. 24th last amount to 9175. Large numbers of gum boots and similar articles and waterproof coats and capes have been provided in addition to the usual army boots and greatcoats.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

AUSTIN, E. C., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Superintendent of the Withington Poor-law Institution.
DANIELS, DAVIS, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed a Senior Surgeon to the Mansfield General Hospital.
JOHNSON, J. STAFFORD, M.B., B.Ch. N.U.I., has been appointed Temporary Resident Surgical Registrar at the Richmond, Whitworth, and Hardwicke Hospitals.
MCFARLAN, W. H., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Hawes District of the county of Yorks, North Riding.
NEALE, T. NORMAN, L.A.H. Dub., has been appointed Dispensary Medical Officer for the Powerscourt District, Dublin.
PICK, LAWRENCE, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Schools Medical Officer to the Barry Education Committee.
POLLOCK, J. H., M.B., B.Ch. N.U.I., has been appointed Temporary Resident Pathologist at the Richmond, Whitworth, and Hardwicke Hospitals.
SALTER, C. E., M.D. Lond., F.R.C.S. Eng., has been appointed Temporary Assistant Medical Officer of Health and Assistant School Medical Officer for Scarborough.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Senior House Surgeon. Salary £140 per annum, with board, residence, washing, &c.
BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.
BEXLEY, KENT, LONDON COUNTY ASYLUM.—Locum Tenens Medical Officer. Salary 6 guineas a week, with quarters, board, and washing.
BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.
BIRMINGHAM, YARDLEY-ROAD SANATORIUM AND ANTI-TUBERCULOSIS CENTRE.—Third Assistant Medical Officer. Salary £200 per annum, with board and residence.
BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.—House Surgeons, Senior and Junior. Salaries £150 and £130 per annum, with board, residence, and laundry.
BOOTLE COUNTY BOROUGH.—Temporary Clinical Tuberculosis Officer. Salary at rate of £400 per annum.
BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
BRISTOL ROYAL INFIRMARY.—Throat, Nose, and Ear House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
BROADMOOR STATE CRIMINAL LUNATIC ASYLUM, Crowthorne, Berks.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, rooms, washing, and attendance.
BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
BURSLEM, HAYWOOD HOSPITAL.—Female Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.
BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
CANCER HOSPITAL, Fulham-road, S.W.—House Surgeon for six months. Salary £100 per annum.
CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
CARMARTHEN, JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.
CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHESTER, CITY AND COUNTY OF THE CITY OF.—Assistant Medical Officer of Health. Salary £300 per annum.
CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing. Also Resident Medical Officer. Salary £200 per annum, with board, &c.
CLAYBURY, LONDON COUNTY ASYLUM, Woodford Bridge, Essex.—Fifth Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and washing.
DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon. Salary £150 per annum, with board, attendance, and laundry.
DEVONPORT ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £170 per annum, with board, residence, and laundry.
DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—Mary Louisa Prentice Montgomery Lectureship in Ophthalmology. Salary about £160 per annum.
DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Female Resident House Surgeon. Salary £120 per annum.
EAST HAM, COUNTY BOROUGH OF.—Tuberculosis Officer. Salary at rate of £500 per annum.
ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.
EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Senior House Surgeon for 12 months. Also House Physician and Assistant House Surgeon for six months. Salary at rate of £250 per annum for senior post and £150 for junior posts, with board, apartments, and washing.
FIJI (THE GILBERT AND ELLICE ISLANDS PROTECTORATE AND THE SOLOMON ISLANDS PROTECTORATE).—Three Medical Officers. Salary £350 per annum, free quarters provided.
GLAMORGAN COUNTY COUNCIL.—Medical Officer for Inspection of Children in Public Elementary Schools. Salary at rate of £300 per annum.
GLASGOW ROYAL MATERNITY AND WOMEN'S HOSPITAL.—Two Indoor House Surgeons and Two Outdoor House Surgeons at the Hospital, and One Outdoor House Surgeon at the West End Branch (which is open only to Lady Graduates); indoor appointments for six months, and outdoor for three months.
GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.
HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
HOLBORN UNION INFIRMARY, Archway-road, N.—Second Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.
HULL, CITY AND COUNTY OF KINGSTON-UPON-HULL.—Temporary Senior Tuberculosis Medical Officer. Salary at rate of £500 per annum.
HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.
INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £100 per annum, with board, &c.
LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Bacteriologist. Salary £170 per annum.
LEICESTER ROYAL INFIRMARY.—House Physician. Salary at rate of £120 per annum.
LINDSEY (LINCOLNSHIRE) COUNTY COUNCIL.—Combined Temporary Assistant Tuberculosis and Assistant School Medical Officers. Salary at rate of £300 per annum.
LIVERPOOL CITY HOSPITAL, Grafton-street.—Visiting Physician. Salary at rate of £130 per annum.
LIVERPOOL, CITY OF.—Locum Tenens School Medical Officer. Salary 6 guineas per week.
LIVERPOOL COUNTY ASYLUM, Rainhill, near Liverpool.—Temporary Assistant Medical Officer. Salary £6 6s. per week, with apartments, board, attendance, and washing.
LONDON COUNTY COUNCIL LEWISHAM CENTRE FOR THE DENTAL TREATMENT OF SCHOOL CHILDREN, 46, Rushey-green, S.E.—Anæsthetist one half-day every fortnight. Salary £25 per annum.
LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Surgeons and Two House Physicians, each for six months. Salary at rate of £60 per annum, with board and residence.
LONDON HOSPITAL, E.—Assistant Surgeon.
MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Resident Surgical Officer. Salary £90 per annum, with board and residence. Also House Surgeon for three or six months. Salary at rate of £70 per annum, with board and residence. Also House Surgeon at Whitworth-street West Hospital for three or six months. Salary at rate of £70 per annum, with board and residence.
METROPOLITAN BOROUGH OF HACKNEY AND STOKE NEWINGTON.—Tuberculosis Officer. Salary at rate of £500 per annum.
MIDDLESEX COUNTY ASYLUM, Napsbury, near St. Albans.—Temporary Assistant Medical Officer. Salary 6 guineas per week, with board, lodging, washing, and attendance.
MIDDLESEX EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
MILE END OLD TOWN INFIRMARY.—Senior Assistant Medical Officer and Junior Assistant Medical Officer. Salary £200 and £150 per annum respectively, with board, lodging, and washing.
MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary £85 per annum, with board, residence, and laundry.
NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

Births, Marriages, and Deaths.

BIRTHS.

FORSTER.—On Feb. 11th, at Woodhill, Crowthorne, Berks, the wife of Lieutenant C. M. Forster, R.A.M.C., of a daughter.
 SMYTH.—On Feb. 13th, at Southcroft, Manor-road, High Barnet, the wife of Francis Radway Smyth, M.R.C.S., L.R.C.P., of a daughter.
 WYARD.—On Feb. 13th, 1915, at 6, Connaught Mansions, Battersea Park, S.W., to Constance Enid, wife of Lieutenant Stanley Wyard, M.D., M.R.C.P., a daughter.

MARRIAGES.

GUNN.—MACDONALD.—On Feb. 6th, at the Catholic Apostolic Church, Edinburgh, James Turner Gunn, M.B., Ch.B., F.R.C.S. Edin., to Adelaide Lucy Frances, only daughter of Mr. and Mrs. N. D. Macdonald, Coll-Earn, Auchterarder.
 SKRIMSHIRE.—LOGAN.—On Jan. 16th, at St. Paul's Church, Poona, Francis Robert Bradley Skrimshire, Captain R.A.M.C., to Nona Jean, youngest daughter of the late C. B. Logan and of Mrs. Logan, Westmarch, Torquay.

DEATHS.

HUNTER.—On Feb. 4th, at 31, St. James-street, Paisley, N.B., John Baird Hunter, M.D. Glasg., of 3, Smithhills-street, Paisley, aged 73 years.
 MCGOWAN.—On Jan. 29th, 1915, at his residence, "Hill-side," Tabankulu, Pondoland, Cape Colony, of pneumonia, W. Oscar S. McGowan, M.B., Ch.B., eldest son of Dr. William McGowan, Maghera, Co. Derry. (Cablegram).
 MCKILLIAM.—On Feb. 7th, at his residence, Ballandalloch, Blackbeath, Robert McKilliam, M.D.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

HOUGHTON MIFFLIN COMPANY, Boston and New York, and CONSTABLE and Co., London.
 Animal Experimentation and Medical Progress. By William Williams Keen, M.D., LL.D., with Introduction by Charles W. Eliot, LL.D. Price 7s. 6d. net.
 KING, P. S., London.
 The Campaign against Syphilis. By F. W. Giles, M.B. Durh., Member of the Council of the White Cross League. Price 6d.
 LAURIE, T. WERNER, London.
 Progressive Portugal. By Ethel C. Hargrove, F.R.G.S. Price 6s.
 Manual of Training for Jungle and River Warfare. By Major Gordon Casserly, Indian Army. Price 3s. 6d. net.
 The Balkan Cockpit. By W. H. Crawford Price. Price 10s. 6d. net.
 LONG, JOHN, LIMITED, London.
 Home Exercise and Health. By P. G. Masters, B.A. Cantab. Third (revised) edition, with additions. Price 2s. 6d. net.
 LONGMANS, GREEN, and Co., London.
 Town Planning. By George Cadbury, jun. Price 7s. 6d. net.
 Directions for a Practical Course in Chemical Physiology. By W. Cramer, Ph.D., D.Sc. Second edition. Price 3s. net.
 Howe's Classified Directory to the Metropolitan Charities, 1915. Price 1s.
 LIPPINCOTT, J. B., COMPANY, Philadelphia and London.
 Text-book of General Therapeutics for Veterinarians. By Eugen Fröhner. Authorised translation from fourth German edition, by Louis A. Klein. Price 12s. 6d. net.
 MILES, EUSTACE, Chandos-street, W.C.
 Uric Acid Fetish. By Eustace Miles, M.A., and C. H. Collings. Price 1s. 6d.
 NATIONAL LEAGUE FOR PHYSICAL EDUCATION, Tavistock-square, London, W.C.
 Mothercraft. A course of lectures delivered under the auspices of the National Association for the Prevention of Infant Mortality at the Royal Society of Medicine and at Charing Cross Hospital Medical School. 1914. Price 3s. net.
 ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, New York.
 Studies from the Rockefeller Institute for Medical Research. Vol. XIX. Reprints.
 THACKER, W., and Co., London and India.
 History of the Indian Medical Service, 1600-1913. By Lieutenant-Colonel D. G. Crawford, Bengal Medical Service, retd. Two Vols. Price 22s. net.
 THE PONS PRESS, Bridge-street, Manchester.
 How You Live Again. By J. Mooney, M.B. Price 5s. net.
 UNIVERSITY PRESS, Cambridge.
 Flies in Relation to Disease: Bloodsucking Flies. By Edward Hindle, B.A., Ph.D., Assistant to the Quick Professor of Biology, Cambridge.
 WHITAKER, London.
 Whitaker's Almanack, 1915. By Joseph Whitaker, F.S.A. Price 2s. 6d.
 Whitaker's Peerage, Baronetage, Knighthood, and Companionage, 1915. Price 5s. net.
 WYMAN AND SON, London, and H.M. STATIONERY OFFICES.
 Manual of Instruction for the Royal Naval Sick Berth Staff. Price 2s.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £300 per annum.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum with board, residence, and laundry. Also Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Surgeon. Salary at rate of £80 per annum, with board, residence, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House Surgeon, unmarried. Salary at rate of £300 per annum, with board, residence, and laundry.

ROYAL ARMY MEDICAL CORPS (TERRITORIALS), THIRD 1ST HOME COUNTIES FIELD AMBULANCE (Maidstone).—Seven Medical Men as Officers.

ROYAL EYE HOSPITAL, Southwark.—House Surgeon. Board and quarters, &c.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Assistant in Out patient Department.

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THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ballinrobe, in County Mayo; at Llanawel, in the county of Carmarthenshire; at Rathgormuck, in County Waterford; at Slieveagh, in County Cork; at Southwold, in the county of Suffolk; and at Tarbert in the county of Argyllshire.

Notes, Short Comments, and Answers to Correspondents.

VERMIN IN THE TRENCHES.

To the Editor of THE LANCET.

SIR,—The screeching of the shells and the ping of the rifles must be very trying to the nerves of our soldiers in the trenches, but the added filth and mud in these dwelling-places, with the forced personal uncleanness, is a physical strain of equal sacrifice to the men; and in the midst of this abnormal state of affairs the additional irritation of the wandering louse calls forth our aid for its immediate capture. Not that this can be done readily as in ordinary civil life, still there should be no difficulty in trapping these pests swarming in their ideal quarters. If trench existence is contrary to personal cleanliness and parasitical life is engendered, there is only one remedy, and that is poison. Both large and small vermin can be only successfully destroyed in this way when they are in abundance. Therefore some easily accessible weapon of destruction should be in the possession of every soldier, and in the emergency castor-oil, on the one hand, for application to sore places, while for poisonous duties a pepper-box containing pyrethrum powder, Keating's powder, or, best of all, flowers of sulphur. Now, the latter can be dusted into the clothing, the stockings, or in any part of the underclothing. When the body gets warm the effect of the sulphurous fumes on the parasites and the ova will soon tell. Then, when an opportunity occurs, a gipsy fire is suitably extemporised, and the clothes overhanging the products of combustion—i.e., smoke—will determine the life of the vermin. I am sure this simple suggestion will comfort the external body of our noble men at the front, and they will appreciate this remedy out of fashion. May I add that sulphite of soda, 2 drachms to 1 pint of water, for bathing the body is inimical to parasitic life.

I am, Sir, yours faithfully,
Alton, Hants, Feb. 9th, 1915. JOHN FREDK. BRISCOE.

To the Editor of THE LANCET.

SIR,—We notice in your valued publication of Feb. 6th that in an article dealing with this matter Lieutenant-Colonel S. Monckton Copeman quotes some directions for using:—

Water	...	...	...	10 gallons.
Jeyes' fluid	...	...	...	1½ ounces.
Soft soap	...	...	...	1½ pounds.

and the lather of this compound is to be allowed to dry on the garment. In the first place, soft soap is hygroscopic and therefore unsuitable to be mixed with something that is to be allowed to dry, and in the second place, there are many more effective vermin destroyers than this particular fluid.

It seems to us that a soap like our "Cofectant" soap or our biniodide of mercury soap, being soda soaps, allowed to dry on the garment would be a much greater protection than such a compound as suggested above, and not liable to cause the garments to keep damp. "Cofectant" has been proved to kill the eggs or larvae of vermin as well as the active units.

We are, Sir, yours faithfully,
EDWARD COOK AND CO., LIMITED,
(THOS. ALEX. COOK, Director.)
Feb. 16th, 1915.

"ANCIENT LIGHTS."

To the Editor of THE LANCET.

SIR,—An interesting survival of mediæval organotherapeutics in rural England came to my notice to-day. Measles of a rather severe type is epidemic here just now, and one of my patients, a sturdy boy aged 4, who had passed through a stage of heavy rash, has had a good deal of subsequent bronchial catarrh with troublesome night cough, but with no signs of pneumonia. This morning I found him distinctly better after a night of quiet sleep, and was just about to commend the action of the last bottle of medicine when the mother, who can neither read nor write, forestalled me. "I must tell you what we done," she said; and what they done was this. A wise old woman had seen the boy on the preceding evening. His cheeks were flushed, and she pointed out that this showed that the "inflammation" had set in, and advised them to get from the butcher the lungs of a sheep just killed, to make a deep cut in each lung, and to apply them each to one of the soles of the patient's feet, keeping them attached all night by a bandage. This was religiously done, and when taken off this morning the lungs were hotter than when applied, and had "drawn out all the inflammation." The credit for the boy's recovery will, I fear, not be mine. This piece of medical lore must have been handed down by word of mouth through many generations of illiterate people.

I am, Sir, yours faithfully,
Bromsgrove, Feb. 13th, 1915. H. CAMERON KIDD.

URINE IN CHILDREN'S DISEASES.

D. G. W.—With the exception of brief articles in works on diseases of children, such as Dr. Dawson Williams's "Medical Diseases of Infancy and Childhood," most of the references to the urine in relation to children's diseases occur in text-books dealing with the general aspects of urinary analysis. There are, for example, incidental references to the urine of children in Brandeis's "L'Urine Normale et Pathologique"; Neubauer-Huppert's "Analyse des Harns," Vols. I. and II.; Abderhalden's "Handbuch der Biochemischen Arbeitsmethoden," Vol. V., Part 1; Blumenthal's "Handbuch der Speziellen Pathologie des Harns"; and Mitchell's "Modern Urinology." The first-named book deals perhaps more fully than the others with the urine of children, and it gives several useful tables showing the composition at various ages. We do not at the moment recall any articles in recent medical literature dealing specially with the examination and diagnostic value of analyses of the urine in children.

Mr. Stanley Burns (Montreal).—The details should be sent to the Imperial Cancer Research Fund, 8-11, Queen-square, London, W.C.

Enthusiast.—We are informed on the best authority that our correspondent's argument is based upon misconception.

Dr. T. D. Harries.—The criticism does not, we hope, apply to the present generation.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. J. F. Twort and Prof. L. Hill: The Effect of the Depth of Pulmonary Ventilation on the Oxygen in the Venous Blood of Man.—Dr. A. J. Ewart: On the Function of Chlorophyll (communicated by Prof. A. C. Seward).—Mr. E. Heron-Allen: Contributions to the Study of Bionomics and Reproductive Processes of the Foraminifera (communicated by Prof. W. A. Herdman).—Mr. A. Compton: The Influence of the Hydrogen Concentration upon the Optimum Temperature of a Ferment (communicated by Prof. W. Bulloch).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY.
SECTION OF ODONTOLOGY (Hon. Secretaries—F. Coleman, F. R. Smyth): at 8 P.M.

Short Communications:

Dr. Ackerley: (1) Some Primary Factors in the Causation of Gingivitis; (2) Disappearance of Adeno-Fibroma of Breast after adequate treatment of Oral Sepsis.

Paper:

Dr. H. Ewan Waller: The Influences of the Thyroid Gland upon Dental Caries.

SECTION OF MEDICINE.—Members of the Section of Medicine are specially invited to attend the meeting of the Section of Odontology. (See above.)

TUESDAY.

SECTION OF MEDICINE (Hon. Secretaries—John Fawcett, Charles R. Box): at 5.30 P.M.

Dr. Frederick Taylor: Case of Multiple Pulsating Tumours Secondary to Hypernephroma.

Dr. Parkes Weber: (1) Bilateral Hypernephroma with Secondary Thrombosis of the Inferior Cava and Uramia; (2) Latent Addison's Disease revealed by the occurrence of Pneumonia.

THURSDAY.

SECTION OF NEUROLOGY (Hon. Secretaries—T. Grainger Stewart, H. Campbell Thomson): at 8 P.M.

Clinical Meeting.

Demonstration of Cases.

FRIDAY.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—G. S. Buchanan, William Butler): at 8.30 P.M.

Special Discussion:

The Epidemiology of Cerebro-spinal Meningitis (opened by Sir William Osler).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Adjourned X Ray Evening. Items of Interest in Connexion with the War will be demonstrated and exhibited by Dr. A. C. Jordan, Dr. H. Orton, Mr. G. Scott, Dr. S. Melville, Dr. R. Knox, and others.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—8 P.M., Mr. W. J. Ashley: The Economic Position of Germany.

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—9 P.M., Dr. T. D. Lister: Demonstration of an Apparatus for Producing Artificial Pneumothorax. Paper:—Dr. G. T. Western: Vaccine Therapy, its Present Scope.

CHILD STUDY SOCIETY LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—6 P.M., Discussion on the Care and Development of the Child—from Ante-natal Period to Five Years of Age, Ante-natal Period, Dr. Eric Pritchard; Infancy, Miss J. Halford; One to Five Years, Dr. D. Forsyth.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.
THURSDAY.—8.30 P.M., Paper:—Dr. E. G. Little: Rodent Ulcer, its Nature and Some Methods of Treating it.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c. ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, WEDNESDAY, AND FRIDAY.—5 P.M., Hunterian Lectures:—Prof. A. Keith: The Anatomy and Mechanism of the Alimentary Canal. (Illustrated by specimens from the Museum of the College and by the use of the epidiascope.) (Lectures I., II., and III.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Gynaecological (Dr. J. B. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Rays and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Clinical Demonstration:—Dr. A. G. Auld: Selected Medical Cases.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynaecological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. K. Sibley: Seborrhoea and Psoriasis.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Some New Growths.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Muscle in the Service of Nerve. (Lecture VI.)

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. Bythell: Military Radiography.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE

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We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 17th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Max. Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 11	29.61	S.E.	...	79	47	37	37	38	Foggy
" 12	29.41	N.E.	...	50	41	35	35	36	Foggy
" 13	29.01	S.E.	0.19	43	48	34	38	39	Raining
" 14	28.78	W.	0.21	65	42	39	37	39	Raining
" 15	29.60	N.W.	...	63	45	36	34	36	Fine
" 16	30.13	S.W.	0.19	67	46	33	33	33	Foggy
" 17	29.62	S.W.	...	49	48	33	43	44	Raining

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The Hunterian Oration

ON THE

TREATMENT OF WOUNDS IN WAR.

Delivered before the Royal College of Surgeons of England on Feb. 15th, 1915,

By SIR W. WATSON CHEYNE, BART., C.B.,
F.R.S., LL.D. EDIN.,
PRESIDENT OF THE COLLEGE.
(With Illustrative Plate.)

GENTLEMEN,—It is now nearly 122 years since the death of John Hunter, and since that time 67 orations have been delivered in his memory, most of them dealing with his life and work. Although I have not read these orations it did not seem likely that there was much left for me to say, but after perusing his works I thought that there might still be something fresh in a consideration of his scheme of life and disease in the light of our present-day knowledge. When, however, this war began so many other more pressing interests arose that I began to doubt whether such an oration would really be of interest, and therefore I gladly fell in with the wishes of some of the more warlike of my colleagues, and shall devote the greater part of this hour to the consideration of a very important subject—viz., the treatment of wounds in war.

JOHN HUNTER: HIS WAR EXPERIENCE.

John Hunter was always trying to solve puzzles. He never met with a point which he could not understand but he tried to find out its meaning, and his museum is an indication of the multifarious things in which he was interested and of the many facts which he collected with regard to them. At the same time he had that great characteristic of true genius, a vivid imagination, and he was always weaving theories to explain his puzzles and modifying or adding to them as seemed necessary. In this way he built up his great scheme of disease, which is full of ingenuity and interest. It does not, it is true, occupy any important place in the teaching of the present day, but the reason for that is that he had so few really basal facts to theorise on.

Among the many puzzles that we have to deal with there is none more urgent or important, especially at the present time, than the treatment of wounds in war. It is a puzzle which has exercised the minds of medical men since the world began, and it is still unsolved. And yet the solution is urgent, both out of gratitude to those who risk their lives for their country and also for the sake of the country itself. To attempt with all our strength to solve this puzzle is a matter of common gratitude, for we owe it to those brave men who risk their lives for our safety and well-being to minimise that risk as much as possible; and it is also a matter of national importance, because the more soldiers we save, and the sooner those who are able can be returned to duty, the greater is our strength.

John Hunter himself had some experience of war, and wrote an article on gunshot wounds which is of great interest, especially as regards the influence of the velocity of the bullet on the nature of the wound. There is no definite record in his writings as regards his war service, but Major

Howell, of the Royal Army Medical Corps, has collected a few facts concerning it. According to him John Hunter accompanied a British expedition to Belleisle in 1761, in which, in the attempts to land a force on the island, there were some 500 wounded men on whom Hunter was enabled to make his observations. His war experience was somewhat increased in the following year, as he went to Portugal for a few months. His connexion with military surgery did not, however, cease at that time, for he remained intimately connected with the army for many years in that he drew his half-pay regularly. In 1786 he returned to the active list of the army. In 1790 he became head of the Medical Department jointly with a physician, Sir Clifton Waitringham. In 1793, some months before his death, he became sole head of the Medical Department of the Army, and according to Howell he was really the first medical director-general of the army. It is interesting in passing to note, as showing the tendency of his mind, that during his service at Belleisle he studied the coagulation of the blood, and when he came home from his army service he brought with him 200 specimens of beasts, lizards, and snakes, which formed the foundation of his museum. A good many of his views on inflammation and on the treatment of wounds were also formed at that time.

TREATMENT OF WOUNDS IN RECENT WARS.

The history of the treatment of wounds in war would form a very interesting topic, but I shall only say a few words with regard to the treatment in recent wars. During the past all sorts of methods of treatment of wounds, whether in peace or in war, have been employed, but very little real advance was made till the Listerian period, and therefore our present interest in these matters only concerns recent wars.

The first war in which any attempt at Listerism was made was the Franco-Prussian War in 1870-71, but Lister's views had not made any great progress at that time, and the methods employed were very feeble and inefficient. The wounds were sometimes washed out with carbolic lotion, and oily solutions of carbolic acid were also employed as dressings, as well as other antiseptics such as acetate of alumina and permanganate of potash. Open wound treatment was also used in some hospitals, but the results were bad. On the whole, there was no great improvement as regards sepsis on this occasion. The statistics of a number of surgeons in this war give a mortality of 50·5 per cent. for amputations, and of 48·6 per cent. for resections of joints.

In the Russo-Turkish War in 1877 some more definite attempts were made to carry out the Listerian methods; but only the work of one or two individual surgeons is of any use for our purpose. In this war all those surgeons who tried Listerism emphasise the difficulty of getting the wounded for treatment at a sufficiently early period, which was generally laid down as within 12 hours after the injury. I need only refer to the work of Reyher, a Russian surgeon who had visited Lister's wards in Edinburgh, and who attempted to carry out his methods as thoroughly as he could. He also emphasises the difficulty of getting the patients and of carrying out the treatment during the first 12 hours, and therefore he had only a comparatively small number of such patients, whom he terms 'primary antiseptic cases.' In his

statistics he stated that his mortality in cases of injuries of joints which came under observation within 12 hours and were treated conservatively was 13 per cent., while in those which were brought in later than 12 hours and in which no thorough disinfection could be made it was 61.5 per cent. As regards compound fractures coming under observation within 12 hours the mortality in primary antiseptic cases was 18.1 per cent., while in those which came under observation later it was 35.3 per cent. The mortality of all the cases treated primarily—that is to say, within 12 hours—including compound injuries of joints, compound fractures, primary resections of bones, and primary amputations, was 6.1 per cent., while that of similar cases which came under observation later than 12 hours was 32.1 per cent. Apart from the delay in getting the patients from the field, the disinfection of each case by the method he employed took some time, and therefore he always took the worst cases first. Reyher's method consisted, in cases of bad wounds of joints, in laying them open, thoroughly washing them out in every direction with 1:20 carbolic acid lotion, free drainage, and antiseptic dressings. In addition, some surgeons—for example, Fischer—recommended that if the wounds were badly soiled these parts should also be treated with strong chloride of zinc lotion.

The next war to which I need refer was the Chino-Japanese War (1894-95), and there also in the Naval Department, which is the only side I know, attempts were made to carry out Listerian treatment. The treatment consisted in washing out the wounds with 2½ to 3 per cent. carbolic lotion, disinfecting the skin, extracting such foreign bodies as were easily accessible, and the application either of antiseptic dressings such as sublimate gauze and carbolic gauze, or of absorbent cotton-wool. As in most cases the wounds could not be thoroughly disinfected in the time at their disposal the surgeons filled them up with iodoform. The result was that nearly all the wounds suppurated, and as an explanation it was pointed out that time did not permit of anything like a thorough disinfection of the wound, and that these wounds were irregularly torn, leaving irregular spaces in which organisms could lie and escape the action of the antiseptic, while the surrounding tissues had lost their resisting power and organisms could multiply readily in them. In this war the average time for the healing of a shell wound was 2½ months.

In the South African War, so far as I know, no thorough attempt was made to disinfect the wounds; indeed, in most cases no special treatment of the wounds was found to be necessary, owing to the fact that for the most part they were small. The majority of these wounds did well if they were allowed to scab over. There were comparatively few large wounds; those which did occur suppurated, and the ordinary troubles which are taking place now were also met with then. It is true, I do not remember to have seen a case of tetanus, but I saw several cases of acute spreading gangrene.

The last great war was the Russo-Japanese War, and by that time antiseptics had been more or less given up, and here we have an example of the so-called aseptic treatment combined with the imperfect use of antiseptics. The wounds were not handled nor washed out with antiseptics, but they were dusted over with a powder of salicylic

and boracic acids and dressed with sterilised gauze. The report of the result runs as follows:—

The wounded, when admitted to hospital, were found to have all their wounds inflamed in a somewhat advanced stage—the bruised tissues were already sloughing off and a reactionary inflammation was already developing around the lips of the wounds. The larger and still open wounds were in most instances covered with a dark grey slough and no signs of firm and red granulations were to be seen.

LESS VIRULENT SEPSIS OF WOUNDS.

If we review these wars we see that, with the single exception of Reyher, no real attempt at the disinfection of wounds has been carried out. Nor has sepsis been conquered; all large wounds suppurate and sometimes slough, and various septic troubles arise. It is true that such septic conditions as phagedæna, pyæmia, &c., with their terrible mortality, are not so frequent as they were before the Listerian era, but otherwise the results are very much the same. In my opinion the explanation of these improved results is as follows. The very bad results in former days were, I have no doubt, due not so much to infection of the wound at the time as to transference of infective material directly from one patient to another by the surgeon and attendants at the dressings. In former days, when the process of infection was not understood, case after case was dressed with the same instruments, which were often not cleaned at all or only rubbed with a cloth or rinsed in water; the surgeons did not even wash their hands after every case. Now we know that if the virulence of a pathogenic organism has diminished during culture the best way of restoring its virulence is by passing it through a series of animals, and further, the virulence of a virulent organism can often be much exalted in the same way. I believe that many of the tragedies in pre-Listerian times arose from the continued transference of increasingly virulent organisms from patient to patient by the surgeon or the attendants. One result of Lister's teaching is that, apart from strict aseptic work (and by that I mean work which ensures asepsis in a wound quite apart from whether antiseptics are used or not), everyone who has to deal with wounds takes care, or ought to take care, by disinfecting the instruments before being used for a fresh patient and avoiding infection of dressings, &c., not to carry organisms from one patient to another. My view is that the chief explanation of the less virulent sepsis which is present in these wounds to-day and to which surgeons point with considerable self-satisfaction, and indeed most that has as yet been gained from modern methods of wound treatment in the case of war, is the result of this simple cleanliness rather than of improved treatment of the wounds themselves.

Before I go any further let me make clear what I mean by sepsis. In speaking of sepsis and septic wounds I refer to the conditions (suppuration, cellulitis, septicæmia, pyæmia, osteomyelitis, and so on) brought about by the ordinary pyrogenic organisms. Whether the amount of disturbance caused is much or little, a wound in which these organisms are growing freely is a septic wound. In the present war, I fancy, attention is chiefly concentrated on the foul smell of the wounds and on the occurrence of tetanus and acute spreading gangrene rather than on the suppurative condition. Now, foul smell in a wound does not mean anything much worse than a septic wound without a foul smell. The odour is due to the presence of some organism (generally a

saprophyte) which produces foul-smelling gases, and though they may increase the amount of toxins absorbed they are easily got rid of by irrigation, free drainage, &c. Tetanus and acute spreading gangrene, again, are independent diseases which happen to get into the wound along with soil, and are to a certain extent independent of the question of sepsis, although they seldom occur in wounds which are not also septic. Further, these diseases, though very terrible, are comparatively rare.

As regards the present war, I do not suppose we can know accurately what the proportion of tetanus is until statistics are made up at the end of the war; but in a note issued to the medical staff in December it is stated that about 0.2 per cent. of the wounded had been attacked by tetanus among the troops in France, and that some further cases had developed after the arrival of the wounded in this country. In recent wars the number of cases of tetanus has averaged less than 1 per cent. of the wounded (varying from 1.2 to 0.26 per cent.). The proportion of acute spreading gangrene is somewhat greater, but we may take it that at most only some 3 per cent. of the wounded will probably be affected with these diseases. Tetanus and spreading gangrene are very terrible diseases, and hence, no doubt, the reason why undue prominence is being given to them; but what I am trying to work out is how best to deal with the other 97 per cent. of the wounded so as to avoid the much more common and often very serious sepsis. Incidentally I think it will be found that in concurrence with the disappearance of the septic diseases the proportion of cases of tetanus and acute spreading gangrene will also diminish.

CONSIDERATION OF METHODS OF TREATMENT.

Now in considering the prevention and treatment of septic infection of wounds it seems to me that there are theoretically three ways in which we may oppose the attacks of the parasitic invaders: 1. To strengthen the natural protective forces in the body to such an extent that they may be able to resist and destroy the invading organisms. 2. To destroy the organisms after they have broken through the natural defences of the body and have established themselves in the injured part or the body generally. 3. To prevent the growth of or to destroy the organisms at their point of entrance into the body before they have had time to establish themselves there.

The Strengthening of the Natural Defences.

The first point raises the very difficult question of immunity and the action of toxins introduced into the body by the surgeon—the so-called vaccines. These questions are much too abstruse for me to go into to-day, if indeed I were competent to do so, and besides they are very far from being worked out; indeed, the theories of this year may very probably not be the theories of two or three years hence. I may, however, say a few words as a clinician on the way in which the matter so far strikes me in reference to the question under consideration.

In former years the use of vaccines was advocated as a prophylactic measure, a certain amount of immunity being produced, or the existing amount of immunity being increased, by setting up a mild attack of the same or of a closely allied disease. This was the process of inoculation and later of vaccination against small-pox, the latter

being produced by setting up a mild attack of a similar disease (if not the same disease), viz., cow-pox, and the value of this measure is universally acknowledged except by a few cranks. The first to extend the process to bacteric diseases was Pasteur, who by the previous injection of organisms, weakened as regards their virulence, was able to induce a considerable amount of protection against the assaults of living and more virulent bacteria of the same kind. Thus he was able to vaccinate chickens against chicken cholera, and sheep and cattle against anthrax. At the present time antityphoid inoculations are being very largely employed and, in the opinion of those best qualified to judge, with great advantage. Prophylactic inoculations have also been employed against cholera and against plague. These attempts to raise the immunity of an animal before infection, and thus to enable it to resist the infection better than one that has not been vaccinated, are thoroughly logical and most promising, and they seem to me to be the proper sphere of vaccine work. It must, however, always be remembered that there is no such thing as absolute immunity and that the increased immunity afforded by the vaccines can always be broken down by a sufficiently large dose of the bacteria.

Of late the attempt has been made on a gigantic scale to employ vaccines not merely as a prophylactic measure, but also in the treatment of disease (these vaccines being composed of the dead bodies of the bacteria with their toxins). This is quite a different principle, however, from that on which vaccines were first introduced, and when it is proposed to rely on this treatment for the recovery of those wounded in war the matter requires very careful consideration. I have always felt rather sceptical as to the possibility of raising the immunity by this plan in cases where the disease is actually in progress. The fact that the disease is present shows that the natural immunity of the body has been more or less overcome, and the general view is that this has been brought about by toxins produced by the invading organisms and absorbed into the system. If this be true, the question very naturally presents itself, How can this immunity be restored by the injection of more toxins of the same kind? I can see no essential difference between the absorption of toxins from a wound and the injection of the same toxins from a bottle. If the quantity absorbed from a wound has broken down the resisting power of the body, how can it be restored by the subsequent injection of more toxins from a flask? I know that bacteriologists try to defend their position, but the arguments put forward in its support are purely theoretical and very obscure.

What support is there from clinical experience in favour of the employment of vaccines for treatment as apart from prophylaxis? Just think how many millions of vaccine injections have been made in the course of the last few years, and in how very few cases we can definitely recognise an immediate and marked improvement, as we ought to do if the treatment is to be justified. Think also, how often we are in doubt whether such improvement as occurs in the course of the treatment is due to the vaccine or is a natural result of the actions of the body. Think again in how many cases (the vast majority, indeed) there is no apparent action at all. I have used vaccines extensively (employing the services of bacteriologists for the

purpose, so that I should not feel that I had not been carrying out the treatment properly), and I have in only two or three cases seen any result which I should not have expected without their use. I have seen lesions getting well in one part of the body and yet, while still under vaccine treatment, fresh lesions breaking out in other parts of the body, and I have also seen bad and even fatal results follow the use of vaccines. To follow out this matter would, however, lead me far from my subject matter to-day, and all I would say as regards the place of the first method in the case of wounds in war is that while I would welcome vaccine injections as a prophylactic measure, I think they are very broken reeds to trust to once the organisms have established themselves in wounds.

Destruction of Organisms in the Body.

Let me now refer very shortly to the second point, of which the chief outcome is chemotherapy, the principle of which is to destroy the organisms by drugs after they have established themselves in the body.

Intermediate between (1) and (2) we have the use of antitoxic sera. Here antitoxins are introduced into the blood which destroy or neutralise the toxins of the bacteria, and the latter, when deprived of their weapons, soon fall an easy prey to the defensive arrangements of the body. The typical example of this is antidipteric serum, which, if given early enough, leads to very rapid arrest of the disease in a way which is not seen in vaccine therapy. In the case of tetanus the antitetanic serum seems also to be very beneficial in some cases, if used immediately after infection.

As to the direct destruction of bacteria by chemical substances or chemotherapy, we have imperfect examples of this in the treatment of malaria by quinine and of syphilis by mercury, and still more definitely in the treatment of syphilis by salvarsan. Whatever may be the value of salvarsan as regards the complete cure of syphilis the immediate effect is most striking and is evidently the ideal to be sought for in the medical treatment of any infective disease. Unfortunately, this form of treatment has not as yet been extended to the infective diseases with which we are at present concerned. If it were it would solve all our difficulties, and it would not be necessary for us to discuss the brutal methods which I felt it to be my duty to recommend at the meeting of the Medical Society last November¹ and which I am afraid I must again to a certain extent emphasise to-day. I sincerely hope that Professor Ehrlich, who, whatever may be thought of German Kultur in general, is the great pioneer in this work and to whom it would be difficult to find a successor, will still be able to go on with his work and will not be crippled in health or opportunity by this war. I may be prejudiced, but I look on Professor Ehrlich as the greatest medical asset that the world possesses at the present time.

The Disinfection of Wounds.

We are thus left with the only method of dealing with these conditions which we possess at the present time—viz., to attempt to destroy or prevent the growth of the organisms responsible for septic diseases before they have established themselves in the wounds, an attempt which we may speak of shortly as the disinfection of wounds.

LISTER'S METHODS.

You may remember that in my paper at the Medical Society last November I traced the history of the disinfection of compound fractures in Lister's work, and I may shortly repeat what I said.

His *first* plan was to introduce impure liquid carbolic acid into the wounds, stir it up with the blood, and leave it there, painting a little of the acid on the surface of the blood clot from time to time. The result of that plan was the complete revolution of surgery; his compound fractures behaved like simple fractures, there was no inflammation, suppuration, or sloughing, and none of the septic diseases such as phagedæna, erysipelas, pyæmia, &c., which were so common in his wards up to that time. What also struck Lister as most extraordinary, and what he was always remarking on, was that tetanus also disappeared, although it had been previously quite common in his wards. He had no idea until many years later that tetanus was an infective disease, but he frequently remarked that suppuration was somehow or other concerned with its onset because he had had no cases since he ceased to have suppuration in his wounds. Had the effect of undiluted carbolic acid been to cause extensive sloughing and to favour the growth of pathogenic bacteria, as some of our workers in laboratories tell us is the case, Lister's experiments would have failed and been abandoned and the revolution in surgery might not even yet have taken place.

The *second* stage, after Lister had given up the use of the undiluted carbolic acids in wounds, was to wash out compound fractures very thoroughly with 1 in 20 carbolic lotion, a catheter being attached to the syringe and passed into all the recesses of the wound, so that no part should escape the action of the antiseptic. It was found, however, that the results were not so uniformly good as in his original method, especially if the wounds were much soiled, and so his *third* plan was, in addition to washing out the wound with 1 in 20 carbolic lotion, to clip away the soiled tissues and apply undiluted carbolic acid to those parts. This is the plan which I have used for years and which has proved very satisfactory. Under the present circumstances in the field, however, I suggested a *fourth* plan—viz., in addition to clipping away the soiled parts, to apply the undiluted carbolic acid to the whole surface of the wound, opening it up if necessary.

My main idea in making this suggestion was in order to ensure that the whole surface of the wound should be subjected to the action of the antiseptic, and that no recesses should escape, as might very easily be the case if the wound were only syringed out. A further idea was that the carbolic acid might, so to speak, "pickle" the tissues and so prevent the growth of micro-organisms in them till such time as the defensive action of the tissues had come fully into play. That the procedure is a severe one and open to several objections I readily admit; the great objection, to my mind, being the risk, in the case of large wounds, of absorption of the carbolic acid to a disagreeable and even dangerous extent. At the same time, considering the evils of sepsis, this risk, which is not really very great, is worth taking if no better way can be found. Whether the plan can be modified in the light of the facts which I shall bring before you to-day is a matter which only experience can decide.

¹ THE LANCET, Nov. 21st, 1914, p. 1185.

DIFFICULTIES IN DISINFECTION OF GUNSHOT WOUNDS.

Some surgeons take a hopeless view of the disinfection of gunshot wounds and think that disinfection is impossible of attainment. That it is quite possible and comparatively easily obtained in accidents in civilian practice is a fact which cannot be denied. Why, then, should gunshot wounds be so hopeless? I think the idea is probably founded on experiments by Lagarde and others carried out a good many years ago. In these experiments it is stated that in gunshot wounds in animals, where the bullet is travelling at high velocity, particles of gunpowder may be driven into the tissues which form the sides of the wound to as great a depth as 17 millimetres and presumably bacteria might also be driven in to the same extent, in which case no amount of syringing out of the wound with antiseptics could affect them. I cannot argue this matter fully here, but I may say that the experiments, so far as I read them, are not convincing and I am not prepared to accept them without fresh and careful repetition.

A further reason given is that the sides of the wound are so deprived of vitality that they must slough. But dead tissue in a wound does not slough if the wound is aseptic; indeed, we constantly put dead substances into wounds, such as ligatures of all kinds, pieces of bone, &c., and they do not separate if they are aseptic. In many accidents in civil practice the tissues are equally badly contused, and yet if disinfected early and thoroughly the wound follows an aseptic course and the bruised tissues do not slough. Sloughing of bruised tissues is due to infection of these tissues. Anyone who followed the course of the bullet wounds in the South African War and remembers how frequently they healed without sloughing or suppuration will, I think, doubt the soundness of the view that gunshot wounds must slough and that bacteria are driven into the tissues to such an extent that sepsis must occur.

A third point which is being urged just now is that almost immediately after infection the infective organisms may be found in the blood of the heart. This may be true as regards guinea-pigs and bacteria which produce general diseases, but I want some further confirmation of it in regard to man and local diseases such as those we are dealing with. Even if it were correct in the case of man that some organisms do find their way from the wound to the heart very quickly, it is not these silly young Cupids that one has to fear in the case of septic wounds; they very quickly suffer the fate of unrequited love. It is the slim old bacteria that establish themselves in the wound, dig themselves in, and then proceed to pour out their toxins, that one has to guard against.

I quite realise, however, that there are many difficulties in carrying out the thorough disinfection of wounds in war, but I cannot believe that disinfection of these wounds is impossible, and I will not believe it till I have tried thoroughly myself and have failed.

In my paper at the Medical Society I especially referred to two great difficulties which stood in the way of any thorough disinfection of the majority of gunshot wounds. The first was the large number of cases which may come under treatment at any one time. Sir Anthony Bowlby has rightly laid great stress on this point in his interesting paper in a recent number of THE LANCET.² In

November I could only suggest that the cases should be sorted out, and that the compound fractures and joint injuries should be dealt with first and as soon as possible, leaving the others to take their chance as regards disinfection.

The second point which I emphasised was the length of time which might elapse between the receipt of the injury and the patient's arrival at a suitable place where thorough disinfection could be carried out, and the consequent failure of any attempt at disinfection owing to the growth of bacteria in the wound in the interval which elapses between its infliction and the reception of the patient at the dressing station or field hospital. With regard to this point I made one or two tentative suggestions, but they were very feeble, though they showed in what direction my mind was working. I said that we had been trying at Chatham to make soluble bougies or suppositories containing carbolic acid which might be pushed into wounds and delay the sepsis, or that, as an alternative, we might push in swabs soaked in iodine and leave them there; but I made no definite suggestion, for the simple reason that I had not worked it out and had no definite facts to go upon.

COMMITTEE OF INVESTIGATION: NATURE OF THE PROBLEM.

I have, however, taken up this problem very seriously since that meeting, and at the suggestion of Sir Arthur May, the Director-General of the Naval Medical Service, have formed a little committee consisting of Fleet-Surgeon Bassett-Smith, the well-known bacteriologist in the Naval Medical Service, Mr. Arthur Edmunds, who has worked with me for years, and who is also attached to the Royal Naval Hospital, Chatham, and myself. I may say that I have been most fortunate in the choice of my coadjutors; they are both men with great scientific knowledge, most industrious, and most ingenious. As far as I am concerned, it has been a great delight to me to go back to laboratory work and experiment again. The work has been done under the auspices of the Naval Medical Service, and the Director-General has given us every assistance that we wanted. It was done partly in the laboratory of the Royal Naval Hospital, Chatham, and partly in Dr. Bassett-Smith's laboratory at the Royal Naval College, Greenwich. We have to thank Sir Arthur May and also the staff at the Chatham Hospital for their most cordial help, and especially Staff-Surgeon Dudley, who has charge of the laboratory there. To-day I propose, with the consent of the Director-General and of my colleagues, to make a preliminary communication on our work, and to mention some of our experiments, and I hope you will remember that though I speak, what I say is the result of our joint work and not of my own alone. The more detailed report of the work, which is by no means completed as yet, will be published in the next number of the *Naval Medical Journal*.

The problem which we set ourselves was whether it was possible to introduce an antiseptic into a wound soon after its infliction which would remain there, diffuse in the blood and tissues, and inhibit the growth of the bacteria till such time as the wound could be thoroughly disinfected.

I think I can make the meaning of the problem clear if I give you an illustration, and as we are dealing with war I shall make it a warlike one. The enemy has established a battery at a certain point not accurately known, but evidently in connexion

² THE LANCET, Dec. 19th, 1914, p. 1427.

with a definite field or wood; that battery is inflicting, or is likely to inflict, great damage on our forces, and we must try to destroy it if possible. Our gunners proceed to throw shells over the suspected area, searching it thoroughly from side to side and from front to back; but it may quite well happen that they may plough up the whole field without injuring the battery or the gunners at all, because the latter are hidden away in some quarry or ditch and thus escape the shells. Just in the same way, we may syringe out a wound with antiseptic lotions without rooting out the bacteria, for they may be lying safely protected by a piece of bone or tissue or blood clot, and that is the reason why I advised opening up the wounds if necessary and applying the antiseptic methodically to the whole surface of the wound. And just as a field may be spoilt uselessly by the guns, so the syringing may damage the tissues without accomplishing its object, and may only enable the bacteria to get a firmer hold.

Now I suppose we all dream about various things at times—at any rate, I know that I do—and I have often thought that if I were writing a sixpenny romance on war I would make our gunners use shells containing some anæsthetic substance heavier than air which would diffuse along the ground and search out and anæsthetise the enemy, however well they were hidden. They and their guns could then be carted away at leisure. How furious it would make my noble and illustrious namesake if he found that his best troops were carted off the field and woke up to find themselves prisoners of war without a scratch on them!

Now I think that something of this kind would be the best way of attacking the bacteria in these wounds—that is to say, instead of syringing out the wound, which if done in a hurry or incompletely is futile—to introduce an antiseptic into the wound and leave it there to diffuse over the whole wound and inhibit the growth of the bacteria till the patient can be brought to the field hospital. It was with that idea in my mind that I spoke of bougies or iodine in November, and that is the problem which we set ourselves to solve.

ACCOUNT OF INVESTIGATIONS.

In working out this problem we had to consider various points. For example, we had to devise a method of estimating the diffusibility of antiseptics in blood clot and their action on the bacteria present in or on that clot. We soon found that their diffusibility and activity varied much according to the medium in which they were present and various other circumstances.

This led us to the question of the form in which the antiseptics should be used in wounds, and we then had to test the action of a variety of antiseptics in various media so as to find one suitable for our purpose.

Again, we had to study in what strengths these antiseptics could be introduced into and left in wounds, and further, we had, as far as possible, to test the action of the antiseptics which seemed most suitable for our purpose, in animals and in man. This last part of our research is still very incomplete, but we have learned a good deal about antiseptics which we did not know before, and therefore I hope this short preliminary communication on our work will not be without interest to you. At the same time, I wish you to understand thoroughly that it is really preliminary. All sorts of lines of research are still occurring to us, and I

would not say anything about it just now were it not that the matter is very urgent and that we have arrived at a point when it is necessary to test our results on actual wounds. Further, we shall no doubt have the benefit of various criticisms.

Media and Antiseptics.

I may, in the first instance, refer to the medium in which the antiseptics should be introduced into wounds in order to delay the growth of bacteria till the wound can be properly attended to. An essential point is that the antiseptic should remain in the wound and not escape from it at once; it is not a transitory action but a more or less continued one that is required. Hence it seems evident that antiseptics in a fluid form will not answer the purpose, for they will run out of the wound almost at once, and their effect will only be momentary. For this reason, therefore, watery, alcoholic, or oily antiseptic solutions were discarded, however efficient they might be from an antiseptic point of view. This left us with various pastes or ointments, and powders. As regards the latter, it would be very difficult to introduce powders into the recesses of a wound, and besides some of the most efficient antiseptics do not occur in the form of powder. Hence we chose pastes, and we have made a large number of experiments with the view of deciding what would be the most suitable basis with which to combine the antiseptic. I will show you presently an example of the behaviour of antiseptics according to the bases with which they are combined, and will make some remarks on this point, but in the meantime I may say that, as far as we can judge at present, the most suitable basis from every point of view is one consisting of six parts of lanoline to one part of white wax. I may say that in the preparations which I shall now show you in reference to the question of diffusibility of antiseptics the latter were combined in varying proportions with this base unless I state the contrary. We have, however, also tested the diffusibility and activity of several antiseptics in liquid or solid form.

The following were the chief substances tested: Carbolic acid. Tricresol (o.m.p. cresol, as Martindale labels it). This consists of the three cresols—ortho-, meta-, and para-cresol—which have very nearly the same boiling point and pass over together in the distillation of coal-tar products. Various proprietary substances which are used by surgeons in which the tricresols or allied substances form the active agents, but are mixed with other products of distillation and with varying quantities of soap so as to form an emulsion. Such were izal, cyllin, hycol, and lysol. Liquor cresolis saponatus (or English lysol made with pure redistilled tricresol, Martindale). Bichloride of mercury. Iodine. Salicylic acid. Salicylic and boric acids (1 to 3), a powder much used in the Russo-Japanese War. The double cyanide of mercury and zinc. Paraform. Turpentine. Various essential oils, especially oil of origanum, oil of cinnamon, and oil of eucalyptus. Alcohol. Various colloidal substances (mercury, silver, gold, selenium). Balsam of Peru, friar's balsam, and Dr. Mencièr's embalming fluid.

We have tested their diffusibility and inhibitory power as regards growth, and also the antiseptic power (i.e., the power of actually killing the bacteria) in blood clot and also on nutrient agar. As a matter of fact, we find that the diffusibility and antibacteric power of most of these pastes are much the same in nutrient agar as in blood clot, and for

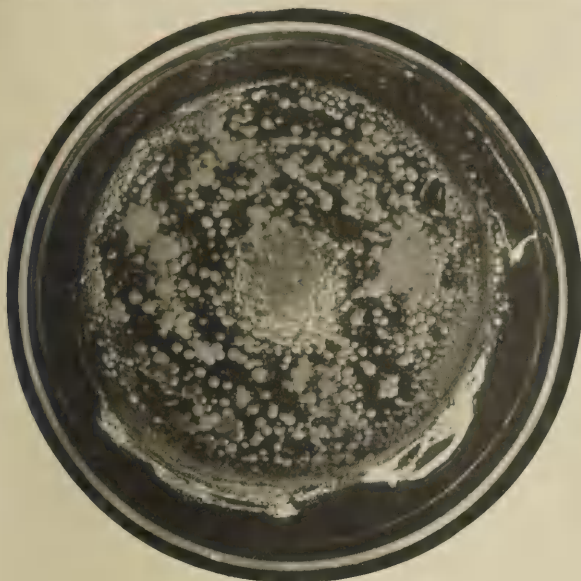


FIG. 1. Iodine Ointment 6 %

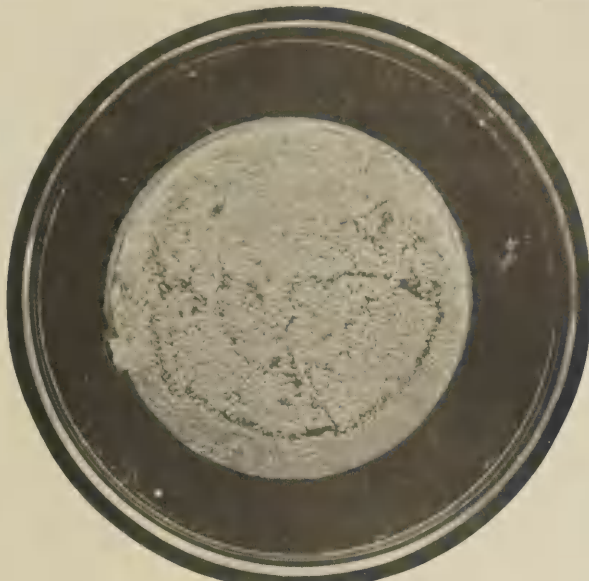


FIG. 2. Absolute Alcohol

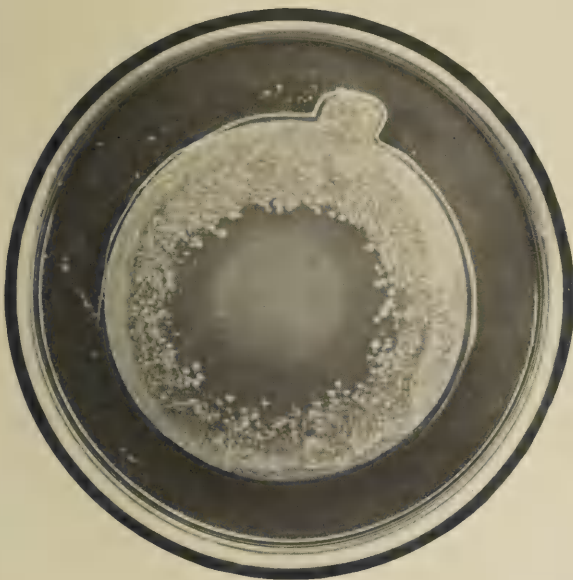


FIG. 3. Paraform 5 %

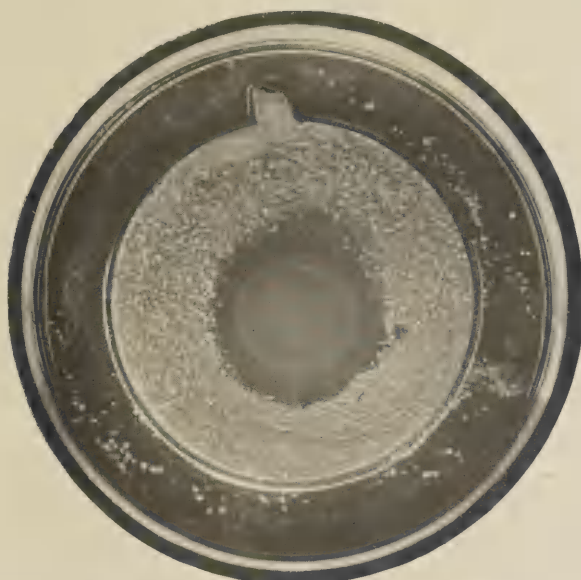


FIG. 4. Corrosive Sublimate Paste 0.2 %

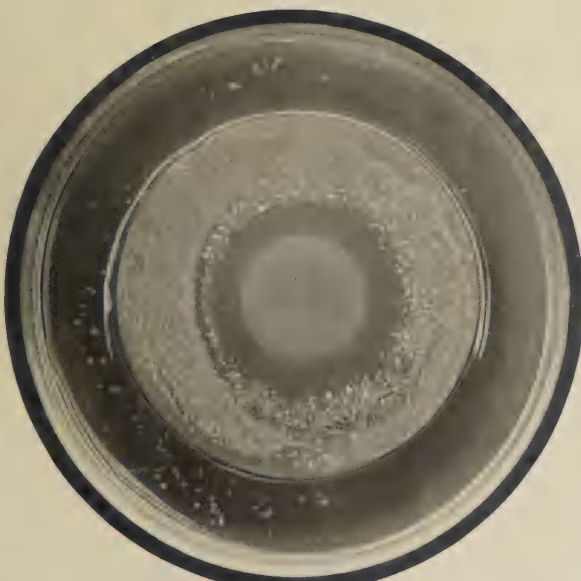


FIG. 5. Lysol Paste 20 %

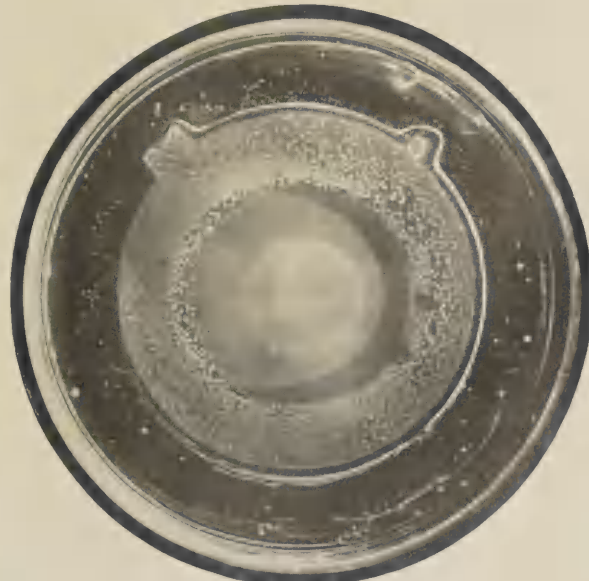


FIG. 6. Carbolic Acid Paste 20 %

To Illustrate Sir W. Watson Cheyne's Hunterian Oration

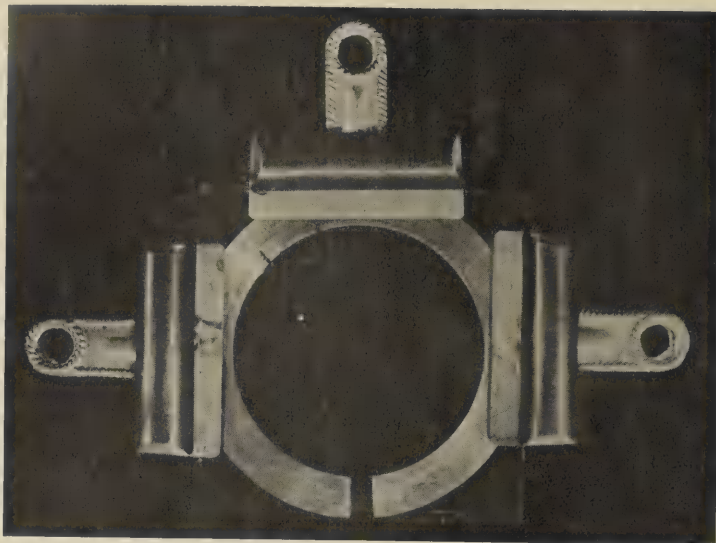


FIG. 7. The Edmunds Cell

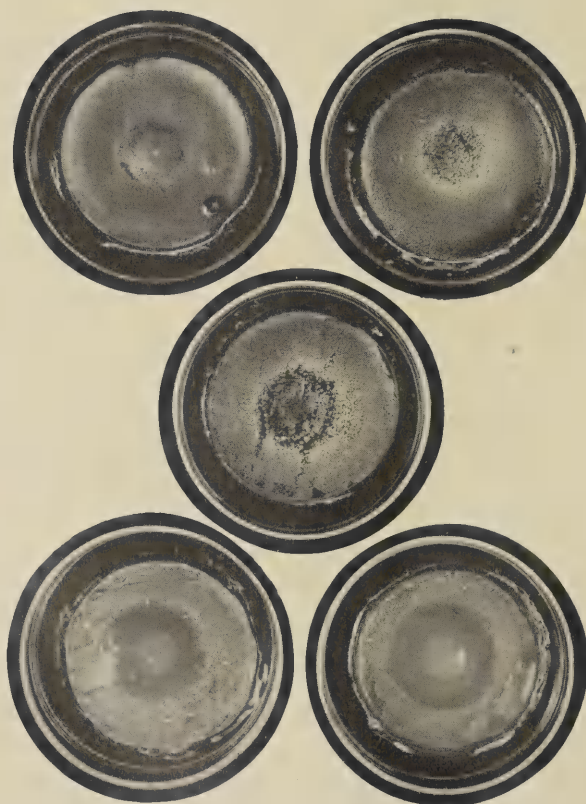


FIG. 8. Carbolie Paste—5 % 10 % 15 % 20 % 30 %

demonstration purposes agar is far more convenient. Hence, on the present occasion, I shall show you some of our agar preparations.

Description of Methods.

Speaking generally, the plan which we have ultimately adopted as regards agar, is to place the antiseptic paste to be tested on the bottom of a Petri dish underneath a slab of nutrient agar and to paint the upper surface of the agar with an emulsion of bacteria of various kinds according to circumstances. We were then able to judge of the diffusibility and activity of the antiseptic by observing the growth or absence of growth of the bacteria which we had planted. Now a comparative test is only of value if all the conditions are exactly the same, and I think we have ultimately worked out a satisfactory method. We always use the same quantity of the paste by weight, either half a gramme or one gramme as we wish. This is placed on an ordinary microscopical cover-glass, either $\frac{3}{4}$ or 1 inch in diameter, which is applied to the centre of the under surface of the slab of agar. In this way the antiseptic is applied to the same definite area ($\frac{3}{4}$ or 1 inch) of the agar in all cases. Where fluids have been tested they have been put into a small paraffin cell containing pieces of filter paper and always in definite quantities.

The slabs of agar must also always be of exactly the same thickness, and here we had our greatest difficulty. We began by pouring the agar into a Petri dish, till, as far as we could judge, we had got the proper depth of agar, and then allowed it to solidify and turned it out into another Petri dish in the centre of which the paste was laid. After all, however, this was only guesswork; the table might not be level and one side of the agar might be thicker than another, and besides we could not always be certain that we had put the same amount of agar into each dish. This difficulty has been overcome in a very ingenious manner, and though when two or more men work together it is not usual to refer to any one man's share in particular, still in this instance the arrangement is likely to be very useful in similar experiments in future, and therefore I think I ought to say that it was devised by Mr. Edmunds, and I shall speak of it as Edmunds's cell. (Fig. 7.)

To make an Edmunds's cell you take two square pieces of glass, a brass ring of known thickness (we generally have used one $\frac{1}{4}$ inch thick), the ring being incomplete in one part, and two or three broad paper clips. First sterilise a glass plate in the flame and then lay it down on a dish, then similarly flame the interior of the brass ring and lay it down on the glass, then flame the other piece of glass and lay it over the brass. Bind these together by the paper clips and you have a cell with an opening at one part through which the melted agar can be poured and left to solidify. When the agar has solidified the cell is laid down flat, the clips removed, the upper glass plate and the brass ring lifted off, and then we have the slab of agar lying on the lower glass plate. The cover-glass with the paste is now placed on the centre of this slab, with the paste next the agar, and then the lower part of a Petri dish is inverted over it, the whole turned upside down, and with a little manipulation the slab is transferred to the dish. A thin emulsion of the bacteria to be employed is previously made and is now brushed over the whole surface of the agar with a camel's hair brush. Finally, a little fluid agar is run round the edge of the slab, partly to fix it to the dish and partly to prevent the escape of vapour should the antiseptic to be tested be volatile.

As regards bacteria, we have chiefly employed the ordinary pus organisms, the staphylococcus pyogenes aureus, but we have used micrococcus prodigiosus and also bacillus subtilis so as to study the effect on spores. It will be very interesting when we have time to study other organisms. The Petri dish thus prepared is placed in an incubator at the body temperature and observations made from time to time.

Results of Experiments.

I shall now show you some of the results, and first we will take a series in which the surface of the agar was brushed over with an emulsion of staphylococcus pyogenes aureus, which will show you the effect of various antiseptics on the growth of these organisms, the antiseptics being incorporated in the lanoline and wax base.

The first specimen which I show is a control where everything has been done as I have said, except that no paste has been applied, and you will see that the whole surface of the agar is pretty uniformly dotted with colonies of the staphylococci. (Fig. 2.)

As a marked contrast with this I show you next a plate where a paste containing 30 per cent. of cresol has been used, and you will see the large clear area in the centre where no growth has occurred and the very narrow fringe of small colonies around the edge of the agar. The central space is clear because no bacteria have grown there, and the extent of the clear space indicates the diffusibility and the activity of the various antiseptics when present in this particular basis (lanoline and wax). I shall have a good deal to say presently about the significance of this clear space and also about carbolic acid and tricresol, and I shall therefore leave this and the allied antiseptics to the last and show you, in the first instance, the action of various other antiseptics. I may, however, show you a series of the carbolic acid specimens from 5 per cent. up to 30 per cent. (Fig. 8) so as to illustrate the value of the method, and you will see that as the strength increases so the effect in arresting the growth also increases. In this series only half a gramme of the paste has been used so as to show the contrast of the various strengths better, but in the specimens which follow the amount has been one gramme.

Iodine.

In the meantime I shall pass on to other antiseptics, and in the first place I show you various specimens of the effect of iodine, which is so popular at the present time. I here show you plates where the paste contained 2 per cent. and 6 per cent. of iodine. (Fig. 1.) There was no use in going higher because even these pastes cause marked irritation of the skin, and when we reach 10 per cent. the paste left on only for 2½ hours caused almost complete destruction of the skin, so that iodine of that strength is clearly unsuitable as an application in wounds. Here you see that the iodine has not diffused at all, and that luxurious growth has occurred over the whole area just as in the control dish. I would especially call your attention to the plate where 6 per cent. iodine paste has been used, where you see that the growth is actually more luxuriant over the iodine than elsewhere. At first sight you might think that the organisms painted over the surface had run down and collected in the middle of the slab, but as a matter of fact the centre of these slabs of agar is the highest point on account of the cover-glass and ointment placed behind them. In these specimens the solid iodine has been mixed up with the lanoline and wax basis, and that might be the reason for its failure, and therefore we have gone further into the matter.

In the next plate which I show the iodine was mixed with iodide of potash in the ordinary proportions so as to aid its solution, but here also there is still no action. Again I show you a specimen where the ordinary tincture of iodine of the British Pharmacopœia has been used without any ointment basis, pieces of filter paper being saturated with the tincture and applied in the same manner as the paste, but still no growth has occurred.

I must say that these results have surprised me very much, as I was always under the impression that iodine was quite a useful antiseptic, though I

knew that it was not so good as was generally supposed. However that may be, it certainly does not show the diffusibility and activity which many other substances do, and I am afraid that we must therefore come to the conclusion that iodine is useless for our purpose. Certainly the clinical results in wounds in war, so far as they have come under my notice, coincide with these experimental results, for I have had several very septic cases which I have been surprised to learn afterwards had been freely treated with iodine soon after their infliction and shortly before I saw them.

Alcohol (on Filter Paper).

Some disbelievers in iodine have, I understand, expressed the opinion that any good effect of the iodine solution was due to the alcohol, but I show you here a plate where absolute alcohol has been used and where uninterrupted growth has gone on. (Fig. 2.) This is interesting, because it is not uncommon to see needles, &c., especially hypodermic needles, "disinfected" with methylated spirit.

Other Antiseptics Tested.

Paraform, 5 per cent. in paste (Fig. 3).—Here the result is good; there is a clear area beyond the cover-glass of $2/5$ to $3/5$ inch in extent. Immediately outside this area the colonies are large. As you will note, this is a small percentage of paraform, but I doubt if anything stronger could be employed in a wound, if indeed this percentage would not be too strong.

Double cyanide of mercury and zinc, 10 per cent. in paste.—This shows no action. Dry cyanide powder placed under an agar slab also causes no inhibitory effect, but if the powder is moistened with a little water, as was done in this next specimen, the inhibitory effect is very marked. I confess that I do not as yet understand this, but we are going into the matter. It is possible that there may be some dissociation of the double cyanide, but we shall see. In the meantime, however, I would warn those who wish to use the double cyanide in wounds that they must not put it into a lead vessel, for the lead is rapidly attacked and cyanide of lead is formed which is poisonous.

Bichloride of mercury—(Fig. 4) 0.2 per cent. in paste (= 1 in 500). Here we see a clear area beyond the cover-glass varying from $1/8$ to $1/4$ inch. Note that the colonies are large up to the edge of the clear area.

In the following specimens the antiseptic was combined with the lanoline and wax paste in the proportion of 20 per cent.

Salicylic acid.—Over the area of the cover-glass the surface is fairly clear, but shows scattered colonies. Free growth extends quite up to the cover-glass.

Japanese powder (Salicylic acid 5, boric acid 15, lanoline and wax base 80).—This plate shows very little inhibitory action, no doubt because the percentage of salicylic acid is too small and the boric acid is inert.

Oil of turpentine.—Free growth, no inhibitory action.

Oil of origanum.—The centre is clear, but in the immediate neighbourhood colonies are dotted all over, but it is comparatively clear for about $1/2$ inch. Free growth beyond.

Oil of cinnamon.—Very good, $3/5$ to $4/5$ inch clear area outside the area of the cover-glass.

Oil of eucalyptus.—No interference with growth.

Izal.—Colonies right up to and overlapping the area of the cover-glass.

Cyllin.—Somewhat larger clear area, but separate colonies are found right up to and overlapping the area of the cover-glass.

Hycol.—Better. Comparatively clear for about $3/16$ inch from the cover-glass, but scattered colonies to within $1/8$ inch of the centre.

Lysol.—Clear area about $1/4$ inch beyond the cover-glass.

British Lysol (Fig. 5).—(Liq. cresol. saponat.—Martindale). 20 per cent. paste. Large clear area; quite good.

Frian's balsam (pure).—Free growth. No inhibition.

Balsam of Peru (pure).—Clear circle $3/8$ inch beyond centre.

Dr. Menoïre's embalming solution (pure).—Free growth. No inhibition.

Colloidal mercury, selenium, copper, and silver.—No inhibitory effect.

We may now pass on to *carbolic acid and tricresol*. I have already shown you a series of dilutions of carbolic acid in small quantities, but I may now show you a 20 per cent. paste of carbolic acid (Fig. 6) where one gramme has been used, and then a 30 per cent. one. I may also show you a similar series with tricresol. You see that the results are practically the same with tricresol as with carbolic acid, and they are quite constant.

Significance of Clear Area.

Let us now study these preparations a little more carefully, and especially the meaning of this clear space. In the first place, it indicates that no growth has occurred in that area, and not only so, but that there never has been any growth, or at any rate not since a very short time after the preparation of the slide. In other words, the antiseptic has been able to diffuse so rapidly that it has checked the growth of the bacteria which were sown on the surface before they had formed colonies visible to the naked eye or even under a low power of the microscope. If one examines such a plate under a low power of the microscope, say with a 2-inch lens, 3 hours after inoculation, one can already see the colonies quite distinctly towards the periphery of the agar, but none can be detected towards the centre, in the area which will subsequently remain clear. In rather less than 5 hours after the preparation of the plate the colonies can be perceived with the naked eye. This will give you some idea of the extraordinary rapidity with which these organisms grow. From this we learn that at some period of time within 3 hours after the preparation of the plate, and probably a good deal less than that, the antiseptic has penetrated through $\frac{1}{4}$ inch of solid agar in sufficient amount to arrest the growth of the bacteria; indeed, seeing the extent of the clear area, it must have penetrated to a greater distance than $\frac{1}{4}$ inch. Thus you see the value of this clear space as an index of the diffusibility and activity of an antiseptic, and from the series of specimens already shown you see how differently the various substances which we have tested act.

There is another point which I wish you to note in this preparation (the carbolic acid or cresol plate)—viz., that the colonies at the edge of the clear area are quite small and that they increase in size as they lie further away from it. From this it is clear that the antiseptic did not cease to penetrate at the end of two or three hours. It is true, it only got through in amount sufficient to check growth before colonies had formed in the area shown by the clear space, but it continued to come through to a greater and greater distance, and as it came through it arrested the growth of colonies which had already become visible. All antiseptics, however, do not act in this way. Contrast the appearance of the paraform slide and several of the others which I have already shown. There you will see that the colonies at the edge of the clear centre are large—indeed, sometimes as large as any outside, showing that there was no continuance of the diffusion of the antiseptic; evidently the full amount came through quickly and the full effect was obtained in the first three hours. The continuance of the diffusion is a very important point and one in favour of

cresol and carbolic acid. I think we may therefore conclude that when carbolic acid or cresol is combined with this base a certain amount is stored up and only parted with slowly, whereas in other cases there is no such storing up, the antiseptic passing through quickly and exercising its full effect at once. We are inclined to think that it is the wax to a greater extent than the lanoline which holds up the carbolic acid, because the clear area is larger where the basis is lanoline alone than with the lanoline + wax base. I shall, however, show you immediately a series illustrating the effect of different bases, and you can note this point.

Evidence of Death of Bacteria.

Now another question naturally arises in looking at these barren areas. Are the bacteria, which are planted on the surface, still alive, or have they been actually killed, and, if so, how soon are they killed? You will always find that in cases where 20 per cent. or more carbolic acid or cresol is employed, if you make a cultivation from the centre of the plate over the cover-glass area 24 hours after the commencement of the experiment, no growth takes place, showing that the bacteria have died. We have spent a good deal of time in going into this matter.

In order to ascertain precisely what happens we have drawn a series of circles, $\frac{1}{4}$ inch apart, on a piece of paper. These circles have been numbered from the centre, 1, 2, 3, &c. The Petri dish is placed on this paper so that the centre of the cover-glass is over the centre of the circles. The 1-inch cover-glass occupies circles 1 and 2, and then we have the further circles 3, 4, 5, and 6 at $\frac{1}{4}$ -inch intervals from the edge of the cover-glass. At certain definite intervals of time cultivations have been made from the centre and from various circles around with the following results.

During the first three hours there is no evidence of death of the bacteria even at the centre, so that the absence of growth up to that time is purely an inhibitory effect. After that time one begins to get evidence of the death of the bacteria, in the first instance in the centre, then in No. 3 and No. 4. Here I show a specimen at the end of five hours, where you see that the growth from the centre is only slight, in No. 3 moderately luxuriant, and in No. 4 quite active. Next I show you a specimen from the same experiment 9 $\frac{1}{2}$ hours after its commencement. Here there are very few small colonies at the centre, a marked diminution in No. 3, and normal growth at Nos. 4 and 5. We have generally found that the central area is sterile after six to ten hours, and No. 3 becomes sterile next day and sometimes also No. 4. In one case cultures were taken 6 days after 30 per cent. cresol ointment had been applied, with the result that the centre, No. 3, and No. 4 were sterile. The line between Nos. 4 and 5 also appeared to be sterile at first, but after three days a few colonies appeared in the tube inoculated from that point. Note that the areas 4 and 5 show visible colonies, so that most of them had also died, and the few bacteria which survived had so suffered in health that it took three days before they had recovered sufficiently to grow. It is interesting to note that a cultivation taken from the centre of the 6 per cent. iodine plate three days after the experiment began grew luxuriantly. We have not had time as yet to test this point with other antiseptics or other bacteria, but it will be very interesting to do so.

One other point arises in connexion with these clear areas. Is the hindrance to growth permanent

or does the antiseptic ultimately disappear? Cresol and carbolic acid are both volatile, and it was interesting to see whether a time would come when the medium could again be inoculated with success. To test this we have taken dishes where carbolic acid, cresol, and formalin have been used, and after 21 days we have inoculated the clear space with fresh bacteria, but no growth occurred.

Effects of Different Bases.

I have already said that the results differ considerably according to the base with which the antiseptic is combined. We have made many experiments on this matter with which I need not trouble you, but I show you here a series of 20 per cent. carbolic pastes in five different bases. You will see that the greatest diffusion is obtained with pure lanoline and the least with a paraffin base, the latter being only half as great as the former. The lanoline when mixed with carbolic acid is, however, too diffuent, and besides, it is much more pungent and would irritate the wound and the skin. The addition of wax to it lessens its activity by about one-quarter, but it does not irritate the skin and only requires the introduction of a little more into the wound to obtain the same effect. The greatest diffusion in the carbolic series is obtained with undiluted carbolic acid and the same is the case with cresol.

Imitation of Conditions of a Wound in War.

We have also tried in various ways to reproduce the conditions of a wound in war as far as possible. I may show two experiments.

Take a flattened flask (this was done as it shows better in the epidiascope than an ordinary one), introduce into it nutrient agar with which staphylococci have been thoroughly mixed. When it has set, punch a channel down it and introduce down that channel a piece of gauze or lint which has been soaked in the cultivation of bacteria. Then, by means of a syringe or pipette, put small quantities of cresol or of carbolic ointment into the agar in various directions and place the flask in the incubator.

As you will see in this experiment done five weeks ago and in which 30 per cent. cresol ointment was used no growth has taken place anywhere, while the control vessel shows active growth.

I also show you two similar vessels of gelatin done on Jan. 20th in which micrococcus prodigiosus was used and a piece of ordinary lint which was lying about the laboratory was put in and in the one in which 20 per cent. carbolic paste was used you see no growth. (We have since repeated the experiment with a massive blood clot and precisely the same result has been obtained.)

Spore-bearing Bacilli.

So far I have been speaking of experiments with non-spore-bearing bacteria, and especially with staphylococcus pyogenes aureus, but before I leave this part of the subject I may mention that we have also tried similar experiments with the spores of bacillus subtilis, and I show you one with 20 per cent. carbolic paste which shows a clear area as in the experiments with staphylococci. Tests have been made as to the vitality of the spores; for example, cultivations were taken from the centre, from space No. 3 and from space No. 4, 12 $\frac{1}{2}$ hours after the commencement of the experiment. On the following day there was no growth from the centre, but there was growth from No. 3 to a certain extent and quite copiously from No. 4. After a further 24 hours in the incubator there was still

no growth from the centre, but on the third day slight growth was evident which presently became quite copious. Apparently, though the spores had not been killed, they had been damaged, and took some time to recover their natural activity. We have not yet had time to pursue this matter so far as with staphylococci, but some interesting points as to the action on spores have been observed and are worth following up.

Scope of Investigations.

So much for a short sketch of our experiments with agar. I hope you understand thoroughly what their scope is. This is not a method to test whether a particular antiseptic will or will not kill bacteria, or in what concentration or after what length of time it will do so. For that you have the Rideal-Walker and various other methods, but these only deal with naked bacteria with which the antiseptic comes into immediate contact. The method which I have now shown you is, I think, a far more practical one because it enables us to study the action on bacteria at a distance and in different surroundings, as we have to do in connexion with the treatment of wounds. This method, which I believe is new, opens up quite a fresh line of study, and I fancy that, in following up the points raised by it, we shall have enough to occupy all our spare time while this war lasts. And it is quite possible that we may come across some better antiseptics or some better method of applying them in the course of our study.

The explanation of the diffusion is partly osmotic pressure and probably partly volatility of the antiseptic. Another thing also happens which affects diffusibility—viz., combination of the antiseptic with substances in the surrounding medium. This is probably the explanation of the result with iodine, which, though an active antiseptic when free in the presence of naked bacteria, has a marked tendency to combine with a great variety of substances which diminish or destroy its antiseptic qualities. Hence the reason why it does not diffuse, as an antiseptic, in blood and agar. (We have since found that one iodine plate prepared as above and covered with starch paper shows no starch reaction after 24 hours.)

Experiments on Blood.

Although I have been showing you agar experiments, we have done a number of similar experiments with blood clot—indeed, all our earlier work was with blood. In most of our experiments the blood was received into a long cylindrical vessel and allowed to clot. The clot is then turned out into dishes and cut in slices about half an inch thick, like a Swiss roll, and treated in the same way as I have already mentioned. In some cases a very thin layer of agar has been run over the surface of the clot, so that the colonies of the bacteria can be more readily seen than in the clot itself. I need not take up your time by narrating the experiments, but the results so far as we have gone are very much the same; certainly they are quite the same with the carbolic and cresol pastes and with iodine. The arrest of the growth of the bacteria and their subsequent death occur in blood clot as in agar, and the clot, where it is penetrated by the antiseptic, becomes firm and hard and unsuitable for the growth of bacteria. If a thick mass of blood clot is placed in a beaker and the carbolic or cresol pastes mixed up with it it becomes

a solid mass, and bacteria do not grow in it. A somewhat similar effect is produced by mixing blood with the double cyanide of mercury and zinc powder, but in one case which was tested micrococci were growing on the surface. Iodine in the form of a 6 per cent. paste does not check the growth of organisms in blood at all.

EXPERIMENTS ON ANIMALS.

We have not done much in the way of experiments on animals, because it was necessary to become pretty thoroughly acquainted in the first place with the general behaviour of antiseptics as regards diffusibility and activity, and that has taken up most of the time at our disposal. We have, however, done some experiments and can now take up the matter more systematically.

It is by no means easy to devise suitable experiments on animals, especially on guinea-pigs, which up to the present were the only animals at our disposal; and further, we have not, so far, got a very virulent organism which produces local suppuration in guinea-pigs without at the same time, in most cases, also setting up a general septicæmic disease. Guinea-pigs also have no subcutaneous tissue, so that the skin has to be raised so as to introduce the infective material, and when the wound is closed this material flows into the tissues beyond the region of the wound; in fact, it is practically a subcutaneous injection; or if a fluid is used, it runs out over the skin and may reinfect the wound at a later period. We shall, however, manage to overcome these difficulties.

The best organism that we have tried as yet is the bacillus pyocyaneus, which sets up suppuration and sloughing locally, but at the same time is very apt to get into and grow in the blood. We have, however, got some results with this organism which indicate that we are working in the right direction. To take one series, pieces of lint soaked in a virulent emulsion of bacillus pyocyaneus were introduced into subcutaneous pockets in seven guinea-pigs:—

(a) Control. The inoculation was followed by severe suppuration; the animal rapidly lost weight and was killed in seven days. Bacillus pyocyaneus was present in the wound.

(b) Tricresol paste (30 per cent.) was introduced into the wound immediately after infection. No suppuration for four days, and the animal gained weight; then began to lose weight and slight suppuration occurred. Wound opened and cleaned out, and lint removed; rapidly got well. Bacillus pyocyaneus found in the wound.

(c) Carbolic acid paste (30 per cent.) introduced immediately after infection. Same result as in (b), but no bacillus pyocyaneus found.

(d) Tricresol paste (30 per cent.) introduced 15 minutes after infection. Almost continuous gain in weight; no suppuration for four days. Recovered. Bacillus pyocyaneus not found in wound.

(e) Carbolic acid paste (30 per cent.) introduced 15 minutes after infection. Gain in weight and no suppuration for four days; then slight suppuration, but no bacillus pyocyaneus found. Recovery.

(f) Tricresol paste (30 per cent.) introduced half an hour after infection. Rapid loss of weight, suppuration, and necrosis. Animal killed. Bacillus pyocyaneus found.

(g) Carbolic acid paste (30 per cent.) introduced half an hour after infection. Rapid loss of weight, suppuration, and necrosis. Animal killed. Bacillus pyocyaneus found.

As regards tetanus and spreading gangrene, somewhat similar experiments have been performed with some highly infected earth which Dr. Bassett-Smith was able to produce through the courtesy of Dr. Dudgeon, of St. Thomas's Hospital.

The control animal died in three days from spreading gangrene, and *bacillus aerogenes capsulatus* was present in large numbers. The others died from tetanus from the third to the seventh day, but there was no gangrene, though both *tetanus bacilli* and the *bacillus aerogenes capsulatus* were present.

These experiments are being continued, but so far it seems as if the 30 per cent. pastes carbolic acid and tricresol prevented suppuration (*B. pyocyaneus*) for four days at least, longer than we required, while although tetanus appeared to be unaffected the action of the gangrene-producing organism was apparently checked. By the additional use of antitetanic serum it seems that the occurrence of tetanus may also be prevented. In no case was there any acceleration of the infection by the treatment. Further experiments will be reported later.

OBSERVATIONS ON MAN.

Looking over the specimens that I have shown you it will be seen that there are several antiseptics which evidently have considerable value from the diffusion point of view and which it might be worth while investigating in the case of wounds in war. Such are carbolic acid, tricresol, lysol, corrosive sublimate, paraform, oil of cinnamon, double cyanide of mercury and zinc, salicylic acid, and balsam of Peru. Of these, in all probability, paraform would be too irritating, while if much corrosive sublimate were left in a wound it might be absorbed in serious amount; they might, however, be of use for later dressings. It is clear, however, that the whole subject must be carefully worked out at the front. In the meantime, taking everything into consideration, it seems, so far as we have gone, that tricresol or carbolic pastes should be tried first in the strength of 20 per cent.

In connexion with the use of these pastes in wounds we tested their effect on the skin, and as Mr. Edmunds has a delicate skin and a considerable expanse of it, he was deputed to wear the various pastes for 24 or 48 hours. The 20 per cent. carbolic or cresol pastes did not cause any redness or irritation of the skin, but greater strengths left a reddish area, and it was evident that any greater strength would probably prove unsuitable. The cresol paste also seemed more irritating than the carbolic acid. We also tried various iodine pastes; the 2, 4, and 6 per cent. pastes caused marked redness and irritation of the skin after 24 hours, and this did not pass away for several days. We could not induce Mr. Edmunds to wear a 10 per cent. iodine paste for more than 2½ hours, and that burned a hole in the skin which took some time to heal. From that experience and from the failure of iodine pastes in the experiments with agar and blood clot it is evident that this antiseptic is of no value for our purpose.

Having decided on the paste, we tried to get some fresh wounds on which to try it. Unfortunately for our purpose, though fortunately otherwise, during the last three weeks there have been no fresh naval wounded at the Chatham Hospital, and hence we have not had the opportunity of testing it on actual war wounds. We have, however, had several cases from which we could form some idea as to the action of the paste in wounds. The following was the first case in which we tried the paste:—

1. The patient was a man who shot himself in the face and head. The bullet entered just in front of the mastoid process and ran upwards and forwards and came out at the

inner side of the forehead near the middle line. In its course it broke up the upper jaw and malar bone, leaving a large cavity full of pieces of bone, passed through the eyeball tearing it to tatters, and smashed up the lower and anterior walls of the frontal sinus. The fracture of the frontal bone extended into the nose, where also the dura mater was torn, but there were no cerebral symptoms at first. The remains of the eyeball were removed, and one small, quite loose fragment of bone from the supraorbital region. The 20 per cent. cresol paste was then freely introduced into the whole track and cavity of the wound. The patient lived four days and died of his intracranial injuries, but during that time there was no inflammation, or sloughing, or suppuration from the wounds; they were quite aseptic, and no bacteria could be found in pieces of blood clot examined on the second and third days. On the second day a cultivation was made from the end of the drainage-tube where it projected beyond the wound, and only six colonies of cocci were obtained. Naturally one would have expected some growth from that part, and it is surprising that it was so little. He developed symptoms of meningitis and died on the fourth day. On post-mortem examination suppurative meningitis was found, but there was no suppuration anywhere in the external wound where the paste had been introduced; indeed, although it communicated with the nose and with the tear in the dura mater, the blood clot was lying in it without any decomposition.

I may mention one other case which is also very instructive.

2. The patient had a bad crush of the thumb, practically destroying the vitality of the terminal phalanx and laying open the phalangeal joint. It was a machinery accident and the parts were very much soiled. Carbolic acid paste (20 per cent.) was at once squeezed into the wound and over the dirty skin before his admission to the hospital. When he arrived at the hospital an energetic temporary surgeon proceeded to clean up the wound and thus spoil the observation, but he was caught in time; the parts were dried and more paste was put in. The wound remained quite quiet, no pain, no suppuration, no temperature or constitutional disturbance. We know what a mess such a wound would have been in under ordinary circumstances—stinking, inflamed, swollen, and probably a good deal of constitutional disturbance. At length on the tenth day the surgeon who had charge of the case wanted to see what the condition of the terminal phalanx was, and so he set to work and cleaned out the blood clot and the skin. He found the greater part of the terminal phalanx dead but not smelling, and he applied ordinary dressings. Two or three days later inflammation set in and suppuration spread up along the tendon sheath. He therefore removed the end of the thumb and opened the sheath. My own belief is that had the wound been left alone the infection would not have occurred, the dead tip would have dropped off, and healing would have taken place without any infection. At the same time the result was very remarkable and encouraging.

Four days ago we had an accidental pistol wound of the buttock with fairly large wounds of entrance and exit. Carbolic paste was introduced, and so far there is no sign of inflammation or suppuration.

BEARING OF RESULTS ON TREATMENT OF WOUNDS.

So much for the facts which we have to bring before you. What are the chances of attaining our object? Recall what that object was: to find some means of averting sepsis in a wound for some hours, or at most a day or two, till thorough disinfection can be carried out. Nothing more. Now we have learned from laboratory experiments that quite a number of antiseptic substances are able to penetrate agar and blood clot to a distance of ¼ to ½ inch and still retain sufficient antiseptic power to prevent the growth of organisms, and that this penetration takes place in less than three hours. We have learned in guinea-pigs in the case of the virulent *bacillus pyocyaneus*—quite a different class of organism in its relation to the guinea-pig from the pyogenic cocci in their relation

to man—that the development of infection can be delayed for four to five days by these pastes provided the paste is put in early, within 15 minutes, and that when the wound is cleaned out at the end of that time healing rapidly occurs. From the first observation on man we learn that after one application of one of these pastes to a wound which has not been badly infected no signs of infection have occurred in that region for four days. From the second observation we find that no suppuration or other sign of infection occurred for ten days, although a great part of the tissue bordering on the wound was actually dead, and this was a much dirtier wound than the other.

I cannot but think that these facts point to the possibility that this part of the puzzle as regards the treatment of wounds in war can be solved satisfactorily, and that the danger caused by the delay in getting the cases to a place where proper attention can be given to the wounds can be reduced if not entirely removed.

I think the stage has now been reached when the matter must be worked out more thoroughly on man, and this can only be done at the front. I am afraid I shall not have the opportunity of doing so myself, unless there were a naval action in the Channel. So far, where the actions have been farther north, we have only got the wounded at Chatham a day or two after the injury. Indeed, the only way of getting at the naval cases at an early stage would be to go on board a destroyer or cruiser, but I confess I do not fancy knocking about the North Sea in a destroyer on the off-chance of having a scrap with the Germans. I hope, however, that the plan will be tried by those on board ship, and also by the army at the front. I need hardly say that we shall be only too pleased to show our work and impart our ideas to anyone who is going to work at this subject at the present.

I cannot help thinking, though it is perhaps only a hope, that by this plan we may attain more than a temporary arrest of sepsis, that in some cases we may even attain complete disinfection of a wound, rendering further measures unnecessary, but this, again, can only be worked out at the front. I doubt, however, if these problems will be solved by haphazard work of individual surgeons. Had I the authority I would set aside a small section of the front line with its own line of communications and its base hospital for the thorough study of the whole problem, and appoint a committee of a few men to investigate the subject and to follow up the cases. I say a small section of the front, because one would not want to be overwhelmed with wounded. I need hardly hint that if such a committee were appointed I should like to be one of the members.

CONCLUSION.

I must apologise to you for having taken up so much of your time to-day, but the subject of the treatment of wounds in war is one which has been a hopeless puzzle for centuries, and anything which can in any way, however slight, help to solve that puzzle is well worth the closest consideration. I have also to apologise for having brought you here to-day to hear a Hunterian oration and yet not giving you any oratory or saying anything about Hunter's work, but I am sure that if he had been alive to-day he would have been just as anxious to solve this puzzle as any of us are.

COLLOIDAL IODINE ASSOCIATED WITH SERUM TREATMENT IN TETANUS.

By DR. AUREGAN,

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HAVING been placed in charge of the special tetanus department of a supplementary hospital containing 1100 beds, I had the opportunity of treating 23 cases of tetanus between September and December, 1914. At first I employed intraspinal injections of antitetanic serum in repeated doses; with this treatment the number of deaths preponderated over that of the recoveries. On the other hand, apart from tetanus cases, I employed colloidal iodine in my surgical department (250 beds) as a dressing for wounds,¹ in accordance with the principles laid down by Professor Bazy in the Beaujon Hospital.² Now it seemed to me that the tetanus patients, who had been subjected to serum treatment but had in addition received the above treatment, and whose organism had absorbed colloidal iodine owing to their wounds having been persistently in contact with this preparation,³ recovered in a markedly higher proportion. Since then I have systematically combined colloidal iodine treatment, both in the form of dressings and in the form of daily intramuscular injections,⁴ with serum treatment in tetanus. Tetanus patients who have been thus treated proved to have survived in a proportion of 68·8 per cent., a percentage that would appear to be distinctly higher than the average proportion of recoveries ordinarily obtained.⁵

I therefore consider it my duty to publish my cases at once, whilst at the same time I intend, with the collaboration of M. Viel and Dr. Revault d'Allonnes, to continue our researches on the association of colloidal iodine with serum in the treatment of tetanus.

1. Colloidal Iodine Employed both Internally and Externally in Combination with Serum Treatment.

CASE 1.—Patient sent to the tetanus department on Nov. 3rd, 1914, in a state of manifest tetanus, by Dr. D—. Wounded at Ypres on Oct. 29th. Shell wound of the left hip. Incubation period 5 days. The temperature has never reached 39° C. Pulse slow, never exceeded 115, and soon fell to 60. Firm trismus; biting of the tongue. This patient was brought to us in a state of absolute rigidity and with opisthotonos; frequent and intense convulsive attacks; spasm of the glottis of so alarming a type that he was prepared for tracheotomy; the operation could, however, be avoided. Deglutition was impossible for three days. The slightest attempt at deglutition brought on attacks of asphyxia. Treatment: The wound was dressed daily with colloidal iodine. Daily intramuscular injections of colloidal iodine. Intraspinal injections of antitetanic serum, 30 c.c. on the first day, 20 c.c. on the second, 25 c.c. on the third, and 30 c.c. on the fifth. Every three to four hours medicated enemata containing bromide of potassium 3 grm., chloral 5 grm. Subsequently the doses were reduced by one half, and after the fifth day hypodermic injections of bromide and camphor (aa. 1 grm.) in oil were substituted. Recovery in 15 days.

¹ A 25 per cent. oleaginous suspension, of medium coarseness, of electro-chemical colloidal iodine.

² *Revue de Thérapeutique Médico-Chirurgicale*, Feb. 15th, 1914; *Gazette des Hôpitaux*, March 19th, 1914; *La Clinique*, April 10th, 1914; *Comptes Rendus du Congrès International de Pathologie*, October, 1912.

³ The above-mentioned articles prove the extremely high diffusibility of colloidal iodine in the organism whether it be injected intramuscularly or merely applied to absorbing surfaces.

⁴ For intramuscular injections I have employed a 20 per cent. ultra-finely granular oleaginous suspension of electro-chemical colloidal iodine.

⁵ In no case was the diagnosis of tetanus at all doubtful; most of the cases had been sent to us by the medical officers of various departments in a condition of manifest tetanus.

CASE 2.—Patient of the tetanus section. Wounded at Ypres on Nov. 4th, 1914. Fracture of the right leg and the right elbow due to shrapnel bullets. Incubation period 16 days. The onset was slow but progressive. Six days before and three days after the appearance of trismus the temperature rose to 40° C.; it remained in the neighbourhood of or below 38°. The trismus was not very firm. The convulsions were not very intense, and mainly in the leg. Owing to the action of the risorius and of the face muscles, risus sardonius was well marked. Few clonic spasms; biting of the tongue; no visceral symptoms. Treatment: External and internal administration of colloidal iodine, as in Case 1. Wellcome's antitetanic serum, 10 c.c. hypodermically, when the first signs became apparent; 40 c.c. intraspinally on the following day. Chloral 5 grm. per diem and bromide by the mouth. The symptoms increased progressively until the fourth day, then diminished until they disappeared completely on the eighth day. In this case one might question as to whether one were dealing with a case of benign tetanus that has been subjugated by treatment.

CASE 3.—Patient sent to the department by Dr. D— on Nov. 12th, 1914, in a condition of manifest tetanus. Wounded at Ypres on Oct. 5th. The right leg had been pierced by a fragment of shell; penetrating shell wound of the right hand. Incubation period 6 days. On the 11th cramps in the wounded leg followed by a violent onset of very severe symptoms. Temperature fluctuating between 38° and 39° C., rising to 40° after each serum injection. Pulse varied between 110 and 140. Moderately marked rigidity of all the muscles of coördination, especially of those of the neck and jaw. Very violent and frequent convulsive seizures, the frequency depending on external stimulation. Biting of the tongue. From the fourth day onwards these crises of the external musculature became less intense and the intervals increased. On the other hand, splanchnic cardio-respiratory reaction set in; the respiration became noisy and gasping; during the pharyngeal spasms the face became cyanosed, froth issued from the lips, urine was passed involuntarily. Treatment: External and internal administration of colloidal iodine. Wellcome's antitetanic serum injected intraspinally; 40 c.c. on the day following the appearance of trismus; 40 c.c. of a French antitetanic serum on the third day; 30 c.c. of the same on the tenth day. Chloral; camphorated bromide oil. Asphyxia on the tenth day. Death was only avoided by immediate tracheotomy. Cannula removed on the fourteenth day. From this day forward the patient entered into convalescence as regards his tetanus; the incisors could be separated for 1 cm., the pupils and the eyes regained their movement. The symptoms now continued to ameliorate; three days after the onset only the slightest trace of trismus accompanied by unimportant irritation of the trachea and bronchia remained, the latter being the after-effects of the tracheotomy.

CASE 4.—Patient sent to the tetanus department by Dr. J— on Nov. 16th, 1914, in a condition of manifest tetanus. Wounded on Nov. 3rd at Ypres. Fistulous wound of the thigh due to fragments of shell. Incubation period 11 days. During the night of the 14th–15th the patient twice bit his tongue. On the 15th at 6 P.M. there was difficulty of deglutition, slight trismus. The course of the attack was slow but progressive. Temperature 30.5° C. on the 15th and 16th. Fixed risus sardonius; slight rigidity of the neck and trunk; no contractions of the limbs; no crises. Treatment: As in previous case. Rapid recovery. Normal temperature from the third day onwards; the risus sardonius and slight trismus persisted for another eight days. The same question arises in this as in Case 2: Are we dealing with a case of benign tetanus or with one in which the tetanus has been subjugated?

CASE 5.—Patient sent in by Dr. B— on Nov. 25th, 1914, in a condition of manifest tetanus. Wounded at Ypres on Nov. 18th. A piece of exploded shell penetrated at the outer border of the right scapula. He was a powerful muscular man. Incubation period 7 days. Fulminating onset. On the morning of the 25th towards 10 o'clock he manifested no symptoms of tetanus; he was chloroformed for an attempt at extraction; at 4 P.M. the spasmodic attacks were of extreme violence. Temperature 38.4° C.; pulse 80; opisthotonos; firm trismus, extremely violent crises of considerable duration and recurring every five minutes; biting of the tongue; glottic spasm producing asphyxia; violent colic

with diarrhoea; myosis. Treatment: External and internal administration of colloidal iodine. French antitetanic serum, 55 c.c. intraspinally on the first day; 40 c.c. on the third day; chloral; camphorated and bromide oil. After having moderated for 48 hours the temperature rose above 39° on the fourth day, the symptoms becoming aggravated at the same time. Syncope on the sixth day owing to arrest of the cardiac action; the patient was revived by artificial respiration and massage of the heart; he was able to speak a few words, but succumbed two hours later.

CASE 6.—Patient sent in by Dr. J— on Nov. 16th, 1914, in a condition of manifest tetanus. Wounded on Nov. 2nd at Ypres. Wounds: (a) On the right thigh three wounds from shell fragments, the two first forming a transverse fistulous track in the middle part of the thigh, one wound on the surface of the knee at the internal border of the patella, infected; (b) fistulous wound of the right forearm from shell fragment, fracture of the radius—splinters of bone were removed; (c) penetrating wound of the left cheek from shell fragment having traversed the jaw and broken a tooth. Special remarks: This patient received a hypodermic injection of antitetanic serum 11 days after he was wounded and three days before the onset of tetanic symptoms. Incubation period 14 days. Sudden onset, initial symptoms grave. Temperature 38.2° C.; pulse 90–100. Violent contractions of the masseters, the neck muscles, and those of the trunk and limbs; violent crises every eight to ten minutes; biting of the tongue; no glottic or vesical spasm. The tetanic symptoms improved from the fifth day onwards, but the temperature did not become normal until the fourteenth day. Treatment: External and internal administration of colloidal iodine; belated prophylactic hypodermic dose of 10 c.c. of French antitetanic serum as already mentioned; 50 c.c. administered intraspinally on the day of onset; chloral; camphorated bromide oil. One month later slight contracture of the face muscles still persisted.

2. Colloidal Iodine as a Wound Dressing Combined with Serum Therapy.

CASE 7.—Patient sent in by Dr. H— on Oct. 1st, 1914, in a condition of manifest tetanus. Wounded on Sept. 16th at Soissons. Transverse wound of the left leg; complete severance of the tendo Achillis; partial division of the tibia. On arrival there was copious fetid suppuration; much sloughing. Incubation period 11 days. Gradual onset. Temperature, wide declining fluctuations; maximum 40° C. on the fifth day and 38.5° on the onset of tetanic symptoms. Spasmodic symptoms; opisthotonos, biting of the tongue, difficulty in deglutition, glottic spasm. Treatment: The sinuous and very extensive wound, which exhibited loss of substance and suppuration, was sprinkled daily with a 25 per cent. suspension of colloidal iodine; compresses soaked in the same preparation were allowed to remain on the wound. The absorption of the metalloids, due to the finely divided state of the colloid, is such that the iodine can be detected in the urine 20 minutes after the preparation has been applied.⁶ Intramuscular injection of 15 c.c. of French antitetanic serum on the day of onset; 45 c.c. injected intraspinally on the fourth day; 15 c.c. intraspinally on the sixth day; chloral; camphorated bromide oil. Recovery from tetanus in 15 days. The wound continued to cicatrize in a normal manner.

CASE 8.—Patient in the tetanus section. Wounded at Maucourt (Somme) on Oct. 7th, 1914. Sinuous penetrating wound, due to exploded shell, in the lower and outer region of the left thigh; suppuration; shreds of military cloak removed from the wound. Incubation period 8 days. Gradual onset. Slight trismus on the evening of Oct. 15th. On the morning of the 16th the dental arches could only be separated for 2 cm.; no contractions of the neck and trunk muscles; deglutition easy, but twitching caused in the wounded limb. Temperature normal; pulse 96. Spasmodic seizures provoked by lumbar puncture. On the 18th pains in the viscera, violent colic, and inability to pass urine; the contraction of the sphincter of the bladder was such that it rendered the passage of a catheter uncomfortable. Treatment: Daily dressings with colloidal iodine. 50 c.c. of French antitetanic serum injected intraspinally on the 16th, and on the subsequent days in small frequent doses, 10 to 15 c.c.;

⁶ Tuffier: Paris Médical, 1913.

chloral; camphorated bromide oil. Protracted form; recrudescence of the crises on the seventh day; recovery could not be regarded as definitely attained until the fourteenth to fifteenth day.

CASE 9.—Patient in the tetanus section. Wounded at Ypres on Oct. 26th. Fistulous wound on the right side of the thorax; shell wound in the right thigh, emphysematous gangrene. Incubation period 12 days. On the morning of the 8th spasmodic attacks in the right leg, recurring every five to eight minutes; slight trismus. Temperature between 37° and 38° C.; rose to 40° after the first injection of serum. Slight opisthotonos; the spasms spread to the entire body; biting of the tongue. Treatment as in Case 8. Recovery after 10 to 15 days.

CASE 10.—Patient sent in by Dr. H— on Oct. 9th, 1914, in a condition of manifest tetanus. Wounded in the left arm by a shell fragment on Sept. 27th. Amputation at Villers-Bretonaux on Sept. 29th. Arrived at Rennes with trismus. Incubation period 11 days. After each injection of serum the temperature rose above 39° C. and dropped to 37° on the third day on each occasion. Pulse 130 to 140, poor. Trismus; intense opisthotonos; violent and frequent spasmodic attacks; biting of the tongue; profuse sweating. Grave cardio-respiratory type; attacks of asphyxia due to spasm of the glottis; tracheal obstruction. Treatment: As the stump exhibited a large bleeding surface it was sprinkled thoroughly with colloidal iodine and dressed with the latter. French antitetanic serum injected intraspinally, 50 c.c. on the first day, 30 c.c. on the third day, 20 c.c. on the seventh day, and 20 c.c. on the eleventh day. Course: The condition remained stationary and was grave and alarming for 15 days. A distinct transitory amelioration after each injection of serum, then recrudescence of the symptoms. Towards the fifteenth day distinct improvement, and complete recovery on the twentieth day. Two and a half months after the injury the stump was still suppurating.

CASE 11.—Patient sent in by Dr. D. H— on Oct. 27th, 1914, in a condition of manifest tetanus. Wounded on Sept. 9th. Shell wound at the lower supra-articular end of the left leg; the two orifices were very lacerated; splintered mass of bone; infected. Incubation period (?) 7 days. Temperature between 37° and 38° C.; pulse normal. Opisthotonos; trismus; moderately strong and frequent intestinal spasms; biting of the tongue; profuse sweating. Treatment: Immediate drainage. The drug treatment may be divided into two periods—(1) hypodermic serotherapy without colloidal iodine up to the tenth day; and (2) external application of colloidal iodine combined with administration of chloral. Course: The original condition remained unchanged and without exacerbation or any marked amelioration for about two weeks. Recovery was gradual, and was definitely reached on about the twenty-fourth day.

CASE 12.—Patient sent in by Dr. B— on Nov. 2nd, 1914, in a condition of manifest tetanus. Wounded at Ypres on Oct. 26th. Transfixing wound of the left thigh due to shell fragment. Incubation period 6 days. Gradual onset. Temperature 37° C. on the morning of his admittance to the tetanus ward, and remained so until the following evening; rise to 39° and 40° on the subsequent days. Pulse 120 on the third day, irregular. Opisthotonos; rigidity of the wounded thigh; biting of the tongue; profuse sweating; alarming and frequent glottic spasms—we were on the point of performing tracheotomy. Treatment: Wellcome's antitetanic serum injected intraspinally; 30 c.c. on the day of onset, 20 c.c. on the following day, 20 c.c. on the fourth day, and 30 c.c. on the seventh day. The absorption of the colloidal iodine must have been very limited, for the dressing consisted merely in applying compresses soaked in colloidal iodine to the orifices of the wound; chloral; camphorated bromide oil. On the eighth day the pulse-rate continued to increase and reached 140. To the phase of excitation of the centres there succeeded a new stage; absence of trismus, ability to open and close the mouth in an apparently normal manner, re-establishment of the palpebral and ocular movements. But swallowing and expectoration became impossible, either because the spasm of the glottis persisted, or because it had been replaced by paralysis of the pharynx and of the velum palati. Agony, in which symptoms of asphyxia and cardiac failure were blended. Death on the morning of the ninth day.

CASE 13.—Patient sent in *in extremis* on Nov. 2nd, 1914, by the head physician of Supplementary Hospital No. 79. Wounded at Ypres on Oct. 26th. Fracture of the right forearm by a large shell fragment which had remained in the wound; contused wound of the hairy skin; fracture of the right fibula by shell fragment; copious suppuration. Incubation period unknown; in any case less than six days. Temperature 39° C., but soon attaining higher levels on the subsequent days. Total and persistent rigidity of the trunk, the neck, and the limbs; attacks of cramp, especially in the fractured forearm; biting of the tongue; abundant and profuse sweating; acute pains in the epigastric region may be attributed to tetanus of the diaphragm; glottic and pharyngeal spasm leading to obstruction of the bronchia. Dread of every manipulation that may bring on a spasmodic attack. Treatment: On the third day after invasion the wound in the forearm was opened up and a fragment of shell the size of a small nut was extracted, the ulnar nerve having been injured. The dressing consisted of compresses soaked in the colloidal iodine preparation. Wellcome's antitetanic serum injected intraspinally, 30 c.c. on the day of admittance, 30 c.c. on the next day, 20 c.c. on the third day, 20 c.c. on the fourth day, and 30 c.c. on the seventh day; chloral; camphorated bromide oil. On the seventh day after admittance the heart became accelerated, the respiration obstructed, the temperature dropped below 38°, and death supervened from asphyxia and cardiac failure.

CASE 14.—Patient sent in by Dr. J— on Oct. 14th, 1914, in a condition of manifest tetanus. Wounded on Sept. 29th. Fragment of shell in the foot, having entered from the inner border; extracted from beneath the head of the fifth metatarsal. The fragment was irregular and of the size of a hazel-nut; at the same time shreds of manure were removed. Incubation period 6 days. Temperature raised, 39° to 40° C.; pulse 130. Very frequent and violent spasms; biting of the tongue; firm trismus; profuse sweating; uninterrupted asphyxial attacks. Treatment: Drainage by means of a compress soaked in colloidal iodine preparation, the end emerging from the orifice of the wound. 50 c.c. of French antitetanic serum injected intraspinally. The attacks continued to increase both in frequency and violence; the patient died on the following day from mechanical asphyxia, as much due to the thoracic muscles as to those of the glottis. Recently acquired experience teaches that one might perhaps have combated the asphyxia by tracheotomy.

CASE 15.—Patient of the tetanus section. Wounded on the banks of the Marne on Sept. 16th, 1914. Wound of the prepatellar serous bursa, containing shreds of clothing. Incubation period 11 days. Onset of tetanic symptoms about 4 P.M. on the 26th; mild trismus; mild opisthotonos; slight contractions of the muscles of the face and pharynx; muscular twitching. All these symptoms increased on the next day. Temperature about 37° C. Biting of the tongue; no profuse sweating; incontinence of urine during chloral narcosis. Treatment: On the day of onset, at 9.30 P.M., Dr. Doyen administered an intraspinal injection of 30 c.c. of French antitetanic serum, then 10 c.c. of English antitetanic serum after a few c.c. of cerebro-spinal fluid had been drawn off; on the third day 30 c.c. of French serum intraspinally, and on the fifth day 40 c.c. of French serum intraspinally; high doses of chloral. On the seventh day comatose condition, probably due to the chloral; involuntary micturition—this symptom disappeared on the drug being stopped. The recovery was slow, but could be regarded as complete at the end of 20 days.

CASE 16.—Patient sent in by Dr. B— on Oct. 12th, 1914, the diagnosis being tetanus. Wounded at Lihon on Sept. 25th. Wound due to fragment of shell which had remained in the right leg; fistulous wound of the thorax. Incubation period 17 days. Gradual onset. Temperature 37° C. on admission, 40° in the evening; it continued to oscillate between these two limits for four days, and then fell 1° during the next three days, remaining normal subsequently. Contractions; intense trismus and crises during the first three days; biting of the tongue; sweats. Treatment: Intraspinal injections of French antitetanic serum, 50 c.c. on the day of invasion after drawing off a few c.c. of cerebro-spinal fluid; on the third day 20 c.c. of the French serum after drawing off 20 c.c. of cerebro-spinal fluid; little chloral. From the third day onwards the condition improved, the crises diminished both in number and

intensity, and the trismus became less marked. On the fourth day the improvement was such that it was considered unnecessary to administer a fresh injection of serum. Recovery was confirmed after the eighth day, and was maintained at the end of two months.

CASE 17.—Patient of the tetanus section. Wounded on the banks of the Marne on Sept. 15th, 1914. Shell wound of the inner surface of the left leg; diffuse cellulitis; incised freely on admission. The temperature curve shows that the period of incubation may be gauged in two ways. This patient was operated on for a radical cure of hernia on the sixth day after admission. If Nicolaïer's bacillus had infected the wound on Sept. 15th the incubation period would have been 43 days at the most. If, on the other hand, the tetanus bacillus invaded the patient later, at the time of the operation, the period would have been 27 days at the most. The abscess in the scrotum, which supervened on the thirty-second day after the operation, is in favour of the second hypothesis. Onset extremely gradual; mild spasms of the mylo-hyoid producing a shagreen-like condition of the skin. Stereotyped sardonic expression of the mouth and eyes; very slight trismus; movements of the head caused the sterno-cleido-mastoid muscles to stand out under the skin. The temperature, having fallen to the normal level on the day after admission subsequent to the opening of the cellulitis, remained normal for 14 days. In the next few days it rose to 38.4° C., when the hernia operation was performed. It remained at about 38° with morning remissions for nine days and then fell for four days to from 36.8° to 37.2°. It then remained subnormal for nine days, and an injection of 10 c.c. of antitetanic serum having been administered on the following day, rose to 38.6° within 24 hours, dropping to normal on the day after, to rise again to 39.2° three days later when a scrotal abscess developed, and gradually sinking in four days to the normal level. The pulse varied in keeping with the temperature without being in any way peculiar. Biting of the tongue; no difficulty in swallowing or micturition; respiration stridulous on account of pharyngeal spasm. Treatment: Intraspinal injection of 10 c.c. of Wellcome's antitetanic serum. Recovery probably spontaneous.

CASE 18.—Patient of the tetanus section. Wounded on the banks of the Marne on Sept. 17th, 1914. Fistulous wounds in the right arm and thorax due to shell fragments. Incubation period 15 days. Slow but progressive onset. Temperature only slightly raised. The trismus became more and more marked from the first to the third day; no crises; biting of the tongue; no difficulty in swallowing; no respiratory discomfort. Treatment: Intraspinal injections of French antitetanic serum without preceding evacuation of cerebro-spinal fluid, 45 c.c. on the first day and 40 c.c. on the third. The first injection was followed by a severe general eruption of urticaria. No chloral or any other treatment. After the fourth day the symptoms rapidly subsided. Benign form. The question arises as to whether the serum was of any use whatever.

CASE 19.—Patient sent in by Dr. H.—on Nov. 2nd, 1914, in a condition of manifest tetanus. Wounded at Ypres on Oct. 25th. The tetanus was already manifest when the patient was received by Dr. H.—. General spasms had already been present for two days, the first having been felt on the evening of Oct. 30th. Bullet wound; wound of entry in the left buttock, that of exit on the inner surface of the thigh, 10 cm. from the fold of the buttock. Incubation period 5 days at the most. Temperature 36° C. on arrival, 39° after 24 hours, and 40° on the fourth day. Rapid, bad pulse. The state of intense and permanent contraction of all his muscular system might be described by the word "obstruction"; clonic spasms on the slightest excitation; biting of the tongue; profuse perspiration; the most alarming glottic spasms; urine and semen passed during the attacks; tracheotomy became necessary. The patient's intellectual power remained unimpaired to the last minute; though unable to speak, he succeeded in writing a few words, "I am thirsty," "Thanks." Treatment: Intraspinal injections of 50 c.c. of Wellcome's antitetanic serum on the first day, 20 c.c. on the next intravenously, 10 c.c. on the third day, and 10 c.c. on the fourth day. Chloral enemata; camphorated bromide oil. Tracheotomy performed on the third day; on the fourth day tracheo-bronchial obstruction,

copious mucous discharge, which was inadequately evacuated through the tracheal cannula, although the latter was of large calibre. Death simultaneously from asphyxia and circulatory failure.

CASE 20.—Patient of the tetanus section. Wounded on the banks of the Marne on Sept. 28th. Shell wound in the heel, slight. Incubation period 6 days. Sudden onset. Temperature (39° C.) higher before the appearance of tetanus than after. Very muscular man. Trismus; opisthotonos; very violent and frequent attacks of spasm threatening asphyxia; biting of the tongue; profuse sweating. Treatment: 50 c.c. of French antitetanic serum intraspinaly. Fulminating type; death on the fourth day. I tried in vain to open his jaws with a view to performing rhythmic traction on the tongue and artificial respiration. It was on this occasion that I made up my mind always to keep the materials necessary for tracheotomy in the special ward for tetanus patients.

CASE 21.—Patient sent in by Dr. V.—on Oct. 14th, 1914, in a condition of very acute tetanus. Wounded at Ypres on Oct. 8th. Shell wound in the lower part of the abdomen, entry in front of the left crural arch, exit above the pubis. Incubation period less than 7 days. Fulminating onset. Temperature between 39.5° and 40° C. Small, thready, rapid pulse; pendular rhythm of the heart; extreme rigidity of all the muscles. Treatment: In the department of Dr. V.—French antitetanic serum intramuscularly, about 12 hours before the diagnosis was confirmed; 15 c.c. in the lumbar region 12 hours later. In my special department 30 c.c. intraspinaly on Oct. 14th. Death in a state of muscular relaxation on the morning following his admission to the tetanus ward.

CASE 22.—Patient of the tetanus section. Wounded at Ypres on Oct. 22nd, 1914. Shrapnel wound in the thigh and left buttock of benign appearance. Incubation period 7 days. Slow progressive onset. Temperature 39° C. on the evening preceding the appearance of symptoms and 37° and 38° on the day itself. Pulse good on the first day; contractions and violent crises on the first day; firm trismus; biting of the tongue; profuse sweating; glottic spasm. Treatment: On the first day 30 c.c. of Wellcome's antitetanic serum were given, with chloral, by means of injections. On the afternoon of the second day the general condition was good, the eyes were mobile; there was little in the way of spasms and contractions. As the supply of serum had run low and the patient felt well, no fresh injections were made in order that the serum might be reserved for more serious cases. On the morning of the fifth day the condition became considerably aggravated; the trunk was in a condition of general contraction; the teeth were firmly set; the breathing was noisy and difficult. The condition had become grave. Towards midday the serum arrived. The patient was turned on his side in order to administer the intraspinal injection; three tubes of 10 c.c. each were injected; after this intervention extremely violent spasmodic crises supervened; the glottis closed; the patient was suffocating. He was rapidly removed to the operating theatre on the next floor below; a knife and forceps were found; asphyxia was almost complete, the patient had not breathed for nearly ten minutes; rapid tracheotomy; artificial respiration for five minutes. The breathing was re-established and the muscular system became less rigid. As no cannula was to be found we were forced to remove the inner cannula from a neighbour who had been tracheotomised the evening before—the one was left with the outer tube, the other with the inner. For two hours all went well, the cannula became obstructed, and the coagula were expelled forcibly. All at once the tube became completely blocked; it was removed, and the doctor was sent for at once, who hurried to the spot but arrived too late. Death from asphyxia due to the accidental obstruction of the cannula.

CASE 23.—Patient of the tetanus section. Wounded on the banks of the Marne on Sept. 16th, 1914. Wound from a rifle bullet on the posterior surface of the right thigh; general cellulitis of the whole limb. Incubation period 14 days. Insidious onset. Temperature oscillated about 40° C., might be attributed to the cellulitis. The pulse corresponded to temperature, 130 to 140. Risus sardonicus; trismus; difficulty in swallowing; spasmodic attacks; definite but mild signs of tetanus. Treatment: Intraventricular injections of 10 c.c. of the French antitetanic serum; chloral. The cellulitis was incised and drained six

days after the injury and eight days before the appearance of tetanus. After this intervention the temperature remained about 39° for four days. On Sept. 26th it suddenly rose to 39·8°, and on the next day to 40·4°. The patient manifested all the signs of septicæmia—drawn and leaden facies, rapid and bad pulse, dry tongue, diarrhoea. This condition was maintained subsequently, and it was only five days after the diagnosis of septicæmia had been made that the symptoms of tetanus appeared. The day following their appearance, 36 hours after the intraventricular injection of the serum, the patient died in a condition of muscular relaxation. This death should, it appears, be attributed, not to the tetanus, which was mild and in its early stages, but to the septicæmia.

Properly speaking, the following case ought not to be included in the series. The patient had arrived in *extremis*, emphysematous gangrene immediately recommenced in the stump, and one can hardly put down his death to tetanus.

CASE 24.—Patient of the tetanus section. Wounded in Belgium on Sept. 20th, 1914. He was left lying for three days on the battlefield before being picked up. Crushing of the femur in its upper third to the extent of about 10 cm. On the patient's arrival gas escaped from the cellulitic thigh; in addition there were painful cramps in the wounded limb. The diagnosis of tetanus was considered, but left undetermined. Incubation period not known, but in any case not less than 8 days. Temperature about 40° C.; pulse 140; profuse sweating. Emergency operation on his arrival, amputation below the trochanter. On the morning of the next day, Oct 1st, trismus. 10 c.c of the French antitetanic serum injected into each of the two cerebral ventricles. In the afternoon great restlessness; he beat his breast and expectorated a great deal; then he laughed, and joked in a delirious manner, asked to be allowed to get up; the trismus had diminished; garrulous; he recognised his relatives who had come to see him. Death on the same night.

Conclusions.

1. When one considers these cases as a whole the gross percentage figure of 58·8 survivors in cases of manifest and authenticated tetanus would seem to indicate that the treatment may have exerted some influence. The therapy employed was somewhat complex. Of the elements composing it, which, it may be asked, have been of utility? The measures employed were of two kinds. The object of the first was to prevent the onset of tetanus; as to this point one principle has emanated from the daily visiting of the patients. This precept is as follows:—

2. The treatment of tetanus demands that attention should be paid to all the factors; it must not follow some stereotyped formula, but should be gauged step by step according to the course of the symptoms. The treatment of tetanic attacks consists not only in employing opportune interference, but also, and perhaps above all, in not interfering unnecessarily, not touching the patient unnecessarily, not making him drink too frequently, not attempting to feed him at all costs—all these negative precautions are certainly of great value in contributing to his recovery. As to positive intervention, this should satisfy two indications: (a) to combat the fatal accidents connected with the respiratory system by performing tracheotomy, the instruments for which operation should always be ready to hand in the ward; and (b) to combat fatal accidents attributable to the cardiac system by means of camphorated oil administered in frequently repeated doses and by chloral in doses that should not be excessive. I have never exceeded 5 grm. per diem of chloral, but the drug may also occasionally have to be increased, and, on the other hand, it may have to be suppressed, according to the particular clinical exigencies of the case.

3. The results obtained were as follows:—

		No. of cases.	Re-covered.	Died.
Antitetanic serum.	Without colloidal iodine	10	4	6
	With colloidal iodine	14	10	4

We may subdivide the above recorded cases into two categories. Ten tetanus patients were treated by serotherapy without colloidal iodine treatment; of these, 4 recovered and 6 succumbed, giving a percentage of 40 recoveries. Fourteen patients were treated by serum therapy combined with colloidal iodine treatment; 10 recovered and 4 succumbed, a percentage of 68·8 recoveries. We are therefore justified in asking whether the association of colloidal iodine treatment with serotherapy may not possess a particular efficacy in the treatment of manifest tetanus. That this should be the case would, from a theoretical point of view, not be surprising when one bears in mind that the colloids tend to raise the opsonic index considerably as well as to increase the alexic power, and, on the other hand, that iodine, apart from its antiseptic properties, tends to induce active phagocytosis.

4. Colloidal iodine, whether it be administered in the form of intramuscular injections or be employed as a dressing for wounds, has never caused any local reaction, pain, or rise of temperature, and it is absolutely harmless. Numerous earlier experiments⁷ have demonstrated the microbicidal and antitoxic power of colloidal iodine on pneumococcus, staphylococcus, Eberth's bacillus, coli bacillus, and even Koch's tubercle bacillus.

5. As regards further research, we should study the following problems: (a) What is the rôle played by the antitetanic serum in the treatment and cure of manifest tetanus? Though possibly lacking true curative action—that is to say, being incapable of destroying the tetanus toxin that has once become fixed to certain elements of the nervous system—it may be that the serum, if administered in time, may still be capable of immunising those parts of the central nervous system, more especially of the medulla, which have not yet been attacked, in such a manner that the tetanus intoxication may at least become limited in its progressive course, although any fixation that has already taken place will persist. (b) What is the action of colloidal iodine on the antitetanic serum treatment? Does it act by enhancing the action of the latter? or by catalysis? or as an antitoxic agent? or, again, by stimulating phagocytosis? In any case we may mention that in the eight most satisfactory of our cases the quantities of serum that were injected were considerably reduced. Finally, what is the proper dose? All these questions await a definite answer.

⁷ Vide supra.

THE ASPIRIN TRADE MARK.—The Board of Trade has made an order regarding the aspirin trade marks, the effect of which is to make the word "aspirin" public property. As is well known this is the trade name under which the Bayer Company introduced acetylsalicylic acid and the name under which the drug is best known. It is now open to anyone to sell acetylsalicylic acid as aspirin, and it is hoped that this will not lead to any deterioration in the standard of the drug. As was mentioned in THE LANCET of Feb. 20th (p. 410) there are now several makers of acetylsalicylic acid in this country, and an examination of various samples has shown that chemically most of them are identical with the original aspirin.

ON HEADACHE ASSOCIATED WITH INTRANASAL DISORDERS.

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THERE is not any specific form or degree of headache in the common acceptance so far as I am aware that is characteristic of any one lesion in the upper respiratory passages, so that when we attach the designation "nasal" to headache we refer exclusively to the accredited organic source and not to any definite nature or location of the pain; but the term may pass, as it serves a useful purpose if we make proper allowances and do not attempt to force upon it a too rigid application.¹ A few examples will explain this. Some headaches are nasal indirectly rather than immediately, since though primarily arising from the source implied by the term, the resulting symptom may come about for the most part through the intervention of a changed condition of the blood, which reacts, we may suppose, upon the terminals of certain intracerebral peripheral nerves. More rarely we have evidence that a nasal headache is jointly produced, owing to the oculo-nasal distribution of the ophthalmic nerve, for it is found that a nasal defect can inhibit the best efforts of the refractonist to treat effectively an astigmatism or asthenopia until such defect has been disposed of, when relief comes to both the cephalic and ocular disturbance. Hence we cannot always draw a clear line between nasal and other headaches; indeed, there are numerous compound or mixed forms, the nasal stimulus, variable in degree, acting in consort with, e.g., a migrainous tendency, menstruation, or fatigue, which, singly or combined, manifest themselves by accentuating its effects.²

Etiology of Nasal Headache.

All evidence as to the etiology of nasal headache is derived from clinical experience. I am not aware of any investigations on other lines within recent years that have taught us a new fact. In every case we may assume a predisposition to this particular symptom because, although such proclivity to headache must be extremely common, it is difficult to explain otherwise the immunity enjoyed by people in whom one finds nasal conditions that would be highly productive of cephalic pain in the majority of mankind. There is much room for speculation as to the nature of this immunity, but I am confident there is no justification for stigmatising the opposite temperament as necessarily neurotic or neurasthenic.

Classification.

In attempting to classify the nasal causative agents commonly associated with headache, one finds it possible to arrange them into three groups, which placed in the order of their frequency and effectiveness are as follows: a simple or non-inflammatory, a chronic inflammatory, and a group in which inflammation or congestion is present more or less actively.

The utility of this arrangement is not greatly prejudiced by the fact that suppurative conditions may complicate the second and third groups, and

that a thickened or deflected septum may do the same. In the *first group*, headache is due to pressure somewhere within the nasal chambers of one more or less rigid body such as bone or cartilage against another, the richly innervated mucous membrane—often the cushion of the septum—intervening. This agent or force, whilst the most direct in operation, derives much importance through being often unapparent until a careful search by expert means has been made. A good instance is exemplified by a septal spine projecting against a middle or inferior turbinate, far back, and concealed by an anterior deflection of the triangular cartilage; such a condition may not be discoverable till after systematic packing of the nasal passages with gauze moistened in adrenalin and cocaine solution, or the adoption of some other mode of application of these agents, or even indeed until the anterior obstruction has been resected.

The *second or chronic inflammatory group* includes intranasal changes that imply contact between less resisting surfaces, the morbid effects of any resulting pressure being presumably subsidiary to others of superior energy, some further explanation being desirable to account fully for headache. Simple degeneration of the turbinal or septal mucous membrane entailing softening of bone in more advanced middle turbinal disease; polypi or polypoid degeneration, and possibly an allied condition affecting the walls or lining of one or more of the accessory sinuses, include the commoner types of pathological changes in this group.

The primary effects of the foregoing disorders are stagnation of secretions, hindrance to drainage and ventilation, and reabsorption into the system of muco-purulent or purulent material. If the fossæ are structurally narrow, or one alone is cramped by a deflection of the septum, the remoter systemic effects are all the more pronounced; these consist of circulatory disturbance such as lymphatic stasis, anæmia, or toxæmia enhanced by mal-oxygenation of the blood owing to abeyance of the nasal functions.³ Stasis in the cranio-nasal lymphatics, long accepted as a mechanical result of adenoid obstruction and one of the immediate causes of aprosexia, may be expected to arise out of these conditions, especially in young adults in whom adenoids are a frequent antecedent of the nasal morbid processes.⁴ Anæmia and toxæmia we know promote headache, but I have noted severe nervous breakdown from obvious purulent reabsorption with but little pain in subjects who are not predisposed that way. When, on the other hand, pus is imprisoned in some sinus or cell space, especially of the ethmoid labyrinth, headache is invariably severe and often accompanied by acute mental depression; re-establishment of drainage quickly relieves these symptoms even though suppuration continue.

The *third or inflammatory group* embodies those cases in which headache is associated with rhinitis, in its various forms, moist and dry, pain always tending to subside as congestion passes off. We see it typified in acute coryza, especially if it implicates the accessory cavities; sometimes also after nasal operations before reaction has subsided. Under obstructive conditions headache accompanies spasmodic rhinorrhœa, either perennial or seasonal (hay fever), and we have a common

¹ A paper by Harrison Allen (U.S.A.), On the Headaches which are associated with Chronic Nasal Catarrh, Medical News, March 13th, 1886, is the first known to the author upon this subject.

² Harry Campbell: Headache and other Morbid Cephalic Sensations, 1894; also in opening the discussion on Headache at Aberdeen, Brit. Med. Jour., 1914.

³ G. Macdonald: Diseases of the Nose, 1892.

⁴ Professor Guy (Amsterdam) and William Hill (London); Leeds discussion, Brit. Med. Jour., 1889.

illustration in the aching discomfort, frontal and facial, of iodism; tumefaction having occluded the apertures of the accessory cavities their normal air is believed to be exhausted by absorption, and this engenders pain.⁵

The dry forms of rhinitis are also liable to occasion headache; the familiar rhinitis sicca with slight crusting, or strings of sticky secretion, has frequently an alcoholic basis, but pain is less common than in the foetid atrophic form, in which it is due either to the pressure or obstruction exerted by the foul inspissated masses which envelop the membranes. Some toxic absorption probably plays a part, but in all cases headache is diminished or kept at bay by free lavage. I have a patient suffering with this complaint in whom the local reaction after spraying the mucous membrane with adrenalin and cocaine will excite intense pain in the forehead accompanied by swelling and deep discolouration, pain radiating over the head and lasting four or five days.

The muco-perichondrium covering the sigmoid curves and angles formed by abnormalities of the septum, perhaps through intimate pressure, may independently set up headache, and if the projections impinge the opposite mucous surface at any point they usually establish adhesions. Synechia or adhesions are also sequelae of traumatic intranasal inflammation and granulations, and form fibrous bands of adventitious tissue across the fossae. In all these conditions headache is equally liable to occur, owing most probably to traction upon the nerve endings, as when they are destroyed I have always found that the pain is relieved.

Mechanism of Nasal Headache.

The mechanism of nasal headache can be best explained upon principles worked out for the rest of the body by Dr. Henry Head⁶ and Dr. James Mackenzie.⁷ The track of the nervous impulse is elucidated by a study of the fifth or trigeminal nerve and its connexions in some scheme or map such as I have already published,⁸ pain being mostly referred from a seat of excitation within the nose to a distant part of the head, either in the distribution of the same nerve or in that of the second or third cervical. Supposing the impulse to arise within the nasal fossae it is conceivable that the reference or projection will be either to the peripheral nerves of the scalp or to those of the dura. The weight of evidence seems to point at least in the case of pressure to the supra-orbital or occipital nerves of the scalp, yet in deep-seated nasal headache due to secondary circulatory disturbance there is no clear evidence that the dural branches are not involved. However this may be, admitting that the pain felt in a distant part somewhere in the distribution of the fifth, say the vertex, is referred from a nasal site of excitation, we may assume that an overflow of nervous impulse has taken place in some points or cell territories in the extensive sensory nucleus of the fifth nerve, situated in the pons and medulla, where other neurons from that distant part terminate. As a parallel example, if the sensation of pain is in the occipital region or back of the neck we assume that overflow has occurred lower down along the course of the descending

spinal root. A theory for neuralgia or neuralgiform pain rests upon the assumption that an impulse can pass from one afferent nerve to another when such nerves are closely bound up in the same sheath, as are the strands of the nasal nerve with those of the supra-orbital in the ophthalmic division of the fifth.

FIG. 1.

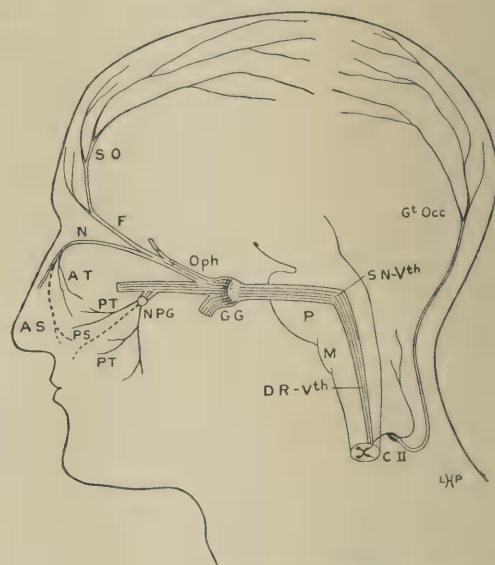


Diagram showing some parts of the trigeminal system concerned in headaches (dural filaments not represented). SO, Supra-orbital nerve. F, Frontal. N, Nasal. Oph, Ophthalmic. AS, Anterior septal. AT, Anterior turbinate. NPG, Naso-palatine ganglion. PS, Posterior septal. PT, Posterior turbinate. GG, Gasserian ganglion. P, Pons. M, Medulla. SN-Vth, Sensory nucleus of fifth nerve. DR-Vth, Descending root of fifth nerve. Gt Occ, Great occipital. C II, Second cervical.

The accompanying illustration (Fig. 1) will help the reader to understand the misreference of pain to distant parts of the head. With regard to the occipital region, it will be seen that the afferent fibres from the nose and sinuses may terminate through the descending root of the fifth nerve in the same mass of grey matter at the tip of the posterior horn and the substantia gelatinosa, in which also end the fibres that carry afferent impressions from the occiput and enter the spinal cord through the second and third cervical posterior roots. For this explanation of referred headache in the occipital region, which owing to its lucidity appears to me to strengthen on anatomical grounds the whole ingenious postulate of "misreference" of pain, I wish to express my indebtedness to Dr. Gordon M. Holmes.

I have lately been considering whether the extremely narrow "anterior nasal canal" through which the nasal nerve descends into the nasal fossa may not, under changed conditions of the nerve or its sheath, exert pressure calculated to set up a rhinalgia otherwise obscure as to its causation. Furthermore, an examination of sections shows that the bony canal itself is liable to be extremely narrow in calibre. I am indebted to Professor Thane for calling my attention to the ethmoidal aperture of this canal. (See Fig. 2.)

Diagnosis, Location, and Character of Nasal Headache.

It has been already indicated that the differential diagnosis of nasal headaches cannot be established by virtue of any characteristic feature. Their variation from the almost intolerable headaches of

⁵ Guy: Ibid.

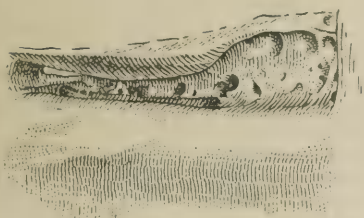
⁶ Henry Head: Pain and its Consequences in Visceral Disease, Brain, 1893-4-6 and 1901.

⁷ James Mackenzie: Symptoms, London, 1909.

⁸ L. H. Pegler: A Map Scheme of the Fifth Nerve, with Letterpress and Tables, Baillière, Tindall, and Cox, 1913.

the organic cerebral class is, I presume, one of degree or continuity rather than of localisation, but if the symptoms of sinus suppuration be included under the category of nasal headache, as is generally done, the circum-orbital pain of maxillary and post-orbital pain of sphenoidal and ethmoidal sinusitis may be regarded as of greater diagnostic value. The most frequent location of nasal headache is over the forehead below the hair line, when the patient in reply to inquiry instinctively draws a hand across the brow. Any line of extension is usually directly upwards to the vertex, less commonly it encircles the temple, least often the pain is referred to the occipital region and nape of the neck. From the earliest writings upon this subject to those of the present time, endeavours have been made to associate certain regions in the nose with definite areas for painful referred sensations in the head, but a glance through one's clinical notes shows that no data of statistical importance can be gleaned from them by which to establish genuine relationship. The mechanism of referred headache already given should make this fact intelligible. Many patients suffering from nasal disease seem to allow themselves to become in a sense inured to headache and, hopeless of relief, make little complaint until questioned on the subject.

FIG. 2.



A view taken vertically to the upper surface of the left half of the macerate cribriform plate (sagittal section, anterior extremity pointing to left). The nasal groove is seen half hidden running between the ethmoidal apertures of the anterior ethmoidal and anterior nasal canals. Partly concealed by the front extremity of the crista galli and separated by a slight ridge from the opening for exit of the nasal nerve is the nasal fissure or slit, stated in Gray's Anatomy, 1913, to admit a process of the dura mater. For further details consult the author's paper on the nomenclature of the nasal nerves in the XVth Section of the Transactions of the International Congress of Medicine, 1913.

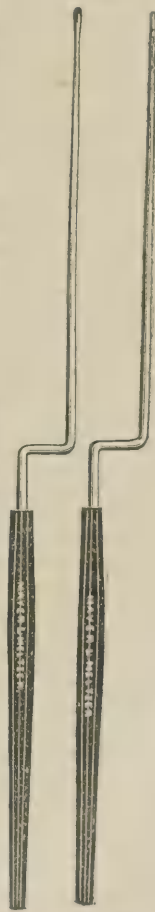
Not rarely pains of different localisation and character in the head afflict a patient concomitantly; a highly intelligent lady, mistress in a county council school, whose case I have watched for some years, distinguished her headaches into three, distributed over separate areas though affecting her more or less synchronously. One of these, which she described as almost unbearable, was a neuralgic pain at the back of the head and seemingly behind the eyes; it often recurred during the day, kept her awake at night, and seriously affected her thinking capacity; it is worth remarking that while it continued, a patch of white hair conspicuously marked its situation. In addition to headache she suffered from asthenopia associated with a low degree of astigmatism; there were also chronic throat irritation and some nasal obstruction occasioned respectively by adenoids and hypertrophy of the inferior turbinates. These comparatively mild conditions proved nevertheless to be the key for the relief of the ocular disturbance as well as of the headaches, for neither expert refraction work nor prolonged rest from duty made any tangible impression till adenoid extirpation and partial resection of the turbinates had been performed.

In character and degree, a nasal headache may range widely between a continuous dull ache or occasional neuralgia, and a fulminating and throbbing seizure radiating pain to the teeth and along all the branches of the trigeminal nerve. In such an attack the scalp is hot and exquisitely tender—a condition persisting after the pain has abated—and there are often photophobia and alarming cardiac depression. I have met with this extreme form in cases where an incurved middle turbinate was pressing forcibly against the septum, and especially where other factors aggravated the initial trouble. Although when more than one cause is in operation such a headache is rightly to be regarded as a compound one,⁹ my experience is that if a proximate cause constituted by hard contact can be discovered and removed the attacks will not recur.

The complaint of a sense of tightness, if not of actual pain, at the root of the nose as the starting point of the headache often serves as a useful guide to the salient cause, and to the discovery of latent pressure or suppuration; sometimes, also, there are slight swelling and a bluish tint of the skin over the affected spot. If the lesion commences on one side, this disposition of the pain generally follows its extension towards the vertex; thus a unilateral character is given to the nasal headache, rendering it liable to be confused with true hemicrania or migraine. Absence of the classical signs of this complaint must be our guide in making a diagnosis, for if the patient can vouch for having experienced the fortification scotoma antecedent to the headache, admits a hereditary tendency, or has suffered from some other member of this symptom-complex, it is right to suspect that migraine is complicating the case. I have never yet seen genuine migraine in nasal disease as Grünwald¹⁰ and others say they have, though the semi-characteristic symptoms of certain neuroses, such as the circular band pain of neurasthenia and the clavus of hysteria, may at least be closely simulated in nasal cases. A neurotic patient, aged 21, referred to me by a distinguished neurologist, at whose hands she had undergone a course of medical treatment and who suffered from a peculiar pain compared to driving a nail into the vault of the skull (clavus hystericus), gradually became free after I had relieved the pressure exerted by a depressed and deflected septum against an inferior turbinate on the left side; the clavus was slightly lateralised correspondingly to the nasal lesion, a fact of diagnostic interest.

It is somewhat humiliating to have to admit, in face of so much positive evidence as to cause

FIG. 3.



Author's nasal probe and cottonwool-holder for investigating pressures or other conditions in the nasal cavities.

⁹ Quain's Anatomy, vol. iii., part 2, p. 16.

¹⁰ Grünwald: A Treatise on Nasal Suppuration, translated by Lamb, 1910.

and effect, that no intranasal appearance though strongly suspicious of setting up a painful excitation, and for all one can tell potentially pathogenic, can safely be regarded as *pathognomonic*. A fairly reliable prognosis may sometimes be arrived at by spraying the suspected area with cocaine and watching for temporary relief, or by a cautious insinuation of the author's nasal probe¹¹ (Fig. 3) into the olfactory cleft, but the sign may ostensibly portend much pain which is non-existent, just as in some other case the intensity of the pain may seem to us out of proportion to the objective sign. This brings one again to the impression that the essential foundation is a constitutional *predisposition*; this term is our main resource, failing a better, in the absence of definite knowledge regarding a human problem at present awaiting solution; but we are little better informed as to the underlying cause of susceptibility to the nasal neuroses, catarrhs, and asthma, often enough the accompaniments or alternatives of headache. Hence the confirmation of our diagnosis depends theoretically upon what has been called the "therapeutic test," and this works out well enough in practice; for, depending upon the matured judgment that comes of long experience, one rarely operates on a properly chosen case without success.

Treatment.

The treatment of these conditions is not necessarily surgical in all cases; if the pain of nasal headache is consequent upon obstruction due to catarrh or inflammatory swelling, reducible by simple but effective measures, it disappears *pari passu* with their application. When the original source is apparently in the nature of pressure there is generally a concurrent sensation of stuffiness in the higher recesses of one or both of the nasal cavities, if the middle turbinate is hypertrophied and cellular, or if the corresponding region of the septum is deflected or thickened, seeing that these abnormalities seriously hinder the free upward passage of the inspired air. In such case surgical treatment of the septum or turbinates can only do good, especially if Casali's view of causation here is correct (cerebral venous obstruction).¹² Intermittency of pain, so common in this class of case, may be attributed to the influence of the vaso-motor system on the nasal blood-vessels and spaces controlling the variations between tumefaction and comparative collapse of the mucous membrane.

The modern, and now perfected operation of sub-mucous resection of the septum is of great value in the treatment of irregularities of that structure that lead the way for headaches, and often facilitates a conservative treatment of the middle turbinates by rendering the septum negative as an opposing agent unless the former is very large or bulbous so as to press against the outer wall.

One may learn much from the study of cases in which a cure has been effected by operation performed at intervals according to the requirements of the situation. I have recently found it necessary to resect both middle turbinates a year after a previous operator had performed the submucous operation of the septum only partially relieving a severe neuralgic headache; the right turbinate had become cystic, but the opposite organ was

wing-shaped and had been flattened against the outer wall of the fossa by the septal deflection; the final effect was satisfactory. More recently I have successfully adopted a plan of gently forcing the flattened middle turbinate away from the outer wall and causing it to be retained there for a sufficient length of time by suitable means; this, of course, is not always feasible. In another patient it was necessary to reduce both inferior and middle turbinates successively at intervals during a period of three years before entire freedom from headache was attained. The result made it evident that each turbinate had by pressure contributed a part towards the elicitation of pain, and that this might therefore be termed a case of complex nasal headache.

So far I have desisted from resecting a middle turbinate in a doubtful case when I could perceive no actual contact with a neighbouring structure, but surprises sometimes await the rhinologist in this branch of his art. A distinguished *confrère* has related how he once fell into serious disfavour through declining to operate in response to a patient's reiterated request, his excuse being the very cogent reason that I have indicated. Following this persistent refusal another surgeon was prevailed to step in and resect the turbinate, after which the headache '*s'enfuit, et fuit encore*.'

Relief usually follows quickly upon the elimination of pressure unless the region is plugged after operating, when it may be slightly delayed. I have once or twice had an opportunity of noting the effect of a gauze dressing left by mischance in the olfactory cleft. The pain set up by this foreign body has not differed very materially from what is usually described when both opposing surfaces are nasal and vital. After clearing away the gauze the relief obtained is also essentially the same in all respects. I mention this fact because it seems to refute an opinion that has been expressed that turbinectomy in such an instance acts by producing an effect through the vaso-motor system and not by the removal of pressure upon the sensitive nerve terminals.¹³ The recovery of headache after surgical treatment may be somewhat tardy in some patients, in which case a short course of bromides or a few doses of phenacetin with caffeine are very helpful in accelerating the cure.

In conclusion, I should like to state once more that where there is the complication of an element of nasal disorder, with a dyspeptic, bilious, or other example of functional headache, the elimination of that nasal element should greatly ameliorate the severity of the general suffering, not only temporarily, as some assert, but permanently. In short, setting aside the purely cerebral organic headaches, and the numerous other forms which are beyond the scope of the rhinologist, there remains a large field of utility in this particular sphere which is always within his reach.

Harley-street, W.

¹¹ L. H. Pegler: The Treatment of Nasal Insufficiency, Brit. Med. Jour., 1900. Hare: Quoted by Francis, London discussion, Brit. Med. Jour., 1910.

¹² S. Auerbach: Headache, and its Varieties, &c., translated by Ernest Playfair, 1913.

¹³ Casali: Quoted by R. J. Behan; Pain, 1914.

ROYAL DEVON AND EXETER HOSPITAL.—The 174th annual report of this institution, which has just been issued, states that during the past year 1926 in-patients were admitted, against 1680 in 1913, and this is the largest number of in-patients ever treated in one year at the hospital; the out-patients were 4248 compared with 3937 in the previous year. The ordinary income was £11,064 and the ordinary expenditure £12,479. The cost per occupied bed was £63 7s. 2d. per annum.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOTOLOGY.

Tuberculosis of the Auditory Apparatus.

THE meeting of this section held on Feb. 19th was devoted to a discussion on Tuberculosis of the Auditory Apparatus, Dr. ALBERT GRAY, the President, being in the chair.

Dr. WYATT WINGRAVE said that one of the first things sought for in examining ear discharge was the tubercle bacillus. In acute tuberculosis of the ear there was a reasonable chance of finding it, but it was almost hopeless to expect to in the chronic cases. He had only succeeded in his search in 16 per cent. of the chronic cases, while in the acute he was rewarded in over 50 per cent. In chronic discharges from the middle ear there was an acid-fast bacillus bearing a very close resemblance to that of tubercle, and it required careful analysis to differentiate, the bacillus of tubercle being alcohol-fast. In acute tuberculosis one found plenty of bacilli but very few giant cells, but in chronic cases this was reversed.

Mr. J. S. FRASER (Edinburgh) demonstrated a series of fine specimens of aural tuberculosis.

Mr. ARTHUR CHEATLE exhibited a series showing the continuity of tuberculosis of bone and membranes. He proceeded to discuss the question of human as against bovine tuberculosis, and related the case of a child, 7 weeks old, of wealthy parents, who had a discharge from the ear, which he (the speaker) regarded as tuberculous, although at the time there was no facial paralysis. An extensive operation proved to be necessary, and after a seaside residence the child recovered perfectly. The bacillus was proved to be of the typical bovine variety. He believed all the cases of the kind seen in children were bovine, and that infection took place through the Eustachian tube, milk being the infecting vehicle. He had never seen an adult with tuberculosis of the temporal bone secondary to lung tuberculosis in whom the disease ran the same course as it did in an infant; probably in the adult it was human tuberculosis and in the infant bovine.

Mr. C. E. WEST said that he had very rarely seen tuberculosis of the middle ear in either adults or children get well after extensive loss of membrane and secondary infection. He agreed that the typical course of the disease in the child differed from that in the adult; but of three recent cases of proven tuberculosis in children two were bovine and one human, the latter showing extensive destruction, with invasion of the labyrinth. The differing behaviour, therefore, he would ascribe to the character of the soil as well as of the seed. Owing to the habit of children putting their fingers into all kinds of places and orifices and then into their ears, the infection in them was usually very mixed. The majority of the adult cases he had seen had recovered if there had been no secondary infection or perforation, but he had never seen a chronically open tuberculous ear in an adult recover. The secondary infection with cocci, and especially with saprophytes, rendered the problem of disinfection of the ear almost insuperable. His chief hope for the future lay in the prospect of increasing immunity reaction, following upon bacteriological research.

Mr. E. D. DAVIS and Mr. W. STUART-LOW discussed the operative indications and technique.

Dr. LOGAN TURNER sent an interesting contribution stating that in eight years at Edinburgh Royal Infirmary there were 51 children under 15 years who had discharge from one or both ears of tuberculous nature. During the same period there were 1797 cases of middle-ear suppuration, of which 2 per cent. were tuberculous, 48, or 9 per cent., cases of middle-ear suppuration under 5 years were of the same character. In 43 of these 48 the discharge commenced before the first year of life had elapsed. During the eight years there were only 9 adult cases of tuberculosis of the ear, as compared with 51 in children. 88 per cent. of the affected children were bottle-fed, and in regard to some there was no record as to this. Facial paralysis occurred in 45 per cent. of the cases. Four of the patients died from tuberculous meningitis.

Sir ST. CLAIR THOMSON found but rare opportunities for the study of tuberculous disease of the ear in a large sanatorium; he had seen only 2 cases among 700 tuberculous patients, although 178 had tuberculous laryngitis. The two cases were painless and the discharge only slight. The few cases of the kind he had had, both in hospital and private practice, seemed to have been quite uninfluenced by sanatorium treatment.

Dr. DUNDAS GRANT found, on looking over numbers of cases, that there was only one case of suppuration of the middle ear to every ten of tuberculosis of the larynx, and he was sure that most of the suppurating cases were not tuberculous. He thought that in many cases of tuberculosis of the mastoid in children the infection was through the blood; but in the adult the infection appeared to be through the Eustachian tube, though this should not occur in health because the ciliary action tended to drive any infection towards the pharynx. But in wasting disease the patency of the Eustachian tube was increased. This had a very important bearing upon both prophylaxis and treatment. The main preventive in the child was care as to the purity of its milk food, while in the adult the condition of the nasopharynx should be watched. In some cases he recognised the disease owing to the presence of more than one perforation of the membrane.

Dr. W. JOBSON HORNE pointed out that bone had been found to be more susceptible to bovine than to human tuberculosis, and emphasised the large proportion of infants who were bottle-fed among the affected infants. He agreed as to the rarity of the involvement of the ear in patients suffering from general tuberculosis.

The discussion was continued by Mr. RICHARD LAKE and Mr. T. MARK HOVELL.

MEDICAL SOCIETY OF LONDON.

Continued Discussion on Radiography in its Relation to the War.

A MEETING of this society was held on Feb. 22nd, Sir JOHN BLAND-SUTTON, the President, being in the chair. The discussion, adjourned from Jan. 25th (reported in THE LANCET of Jan. 30th), was reopened by

Dr. A. C. JORDAN, who said that it might be inferred from recent discussions and articles that the precise localisation of bullets and other foreign bodies was of chief importance, whereas such localisation constituted but a small part of the uses of the radiographer in war surgery. He exhibited many radiograms which demonstrated the several points concerning which the radiographer could be of assistance to the surgeon, and an apparatus which provided a rapid method of precise localisation of foreign bodies by the fluorescent screen.

Dr. G. HARRISON ORTON demonstrated a method of localising foreign bodies embedded in the tissues. It was an adaptation of the triangulation method, and he had first used it several years ago. He thought that there was no difficulty for the operation to be done directly on the X ray table, a small sterilisable screen being employed. He exhibited several prints showing injuries to bone produced by rifle bullets.

Mr. S. GILBERT SCOTT spoke of the diagnosis of necrosed splinters of bone. Such sequestra, he said, were of two kinds, the one soft, poor in lime salts and consequently giving a faint shadow; the other hard, denser, with a heavier shadow. The detection of such splinters depended chiefly upon the surrounding shadow—i.e., upon whether the splinter was lying in normal bone, sclerosed bone, rarefied bone, in a suppurative focus, or in soft tissue, &c. The necrosed splinters could only be demonstrated if there was a sufficient contrast between their shadows and that of the tissue in which they lay. Rarefaction could often be seen in bone at some distance from the injury, but from its distribution did not appear to indicate merely atrophy from disuse. Mr. Scott also exhibited slides illustrating some curious effects on bones produced by modern projectiles.

Dr. STANLEY MELVILLE said that two questions were commonly referred to the radiologist. He was asked (1) whether a foreign body was present; and (2) as to its nature. He was also required to give its approximate anatomical relationships. Further details in localisation

were only occasionally wanted. The most careful localisation as to depth from the surface, &c., might be upset unless the surgeon had determined where he intended to make the incision before the localisation was attempted. He had come to rely more and more upon the help obtained from stereoscopic radiograms. He exhibited a special stereoscopic frame which had the advantage of easy portability.

Mr. E. W. H. SHENTON thought that much of the apparatus which had been devised had become too complicated. The use of a negative at the time of the operation together with a sterilisable graduated scale was a simple and often very effective method. He had devised a probe for the detection of foreign bodies which sterilised itself after introduction into the tissues.

The PRESIDENT said that it had occurred to him during the discussion that the radiologist was disposed to dictate whether a foreign body should or should not be removed. This was a position which could not be conceded by the surgeon. He had come to realise that all accessible foreign bodies which could be localised accurately should be removed. Clinical experience must always play a part in their localisation. The rarefaction of bone referred to by Mr. Scott was explained by sepsis.

Mr. V. W. LOW said that any one particular method could not be relied upon under all circumstances. For foreign bodies near the surface he thought that the exact methods giving their depths were very useful; but when the foreign body lay in the deeper parts it was more important to know its relation to anatomical structures than its exact distance from the surface. He agreed as to the value of stereoscopic methods under such circumstances.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Exhibition of Case.—Radium Therapy in Uterine Cancer.

A MEETING of this section was held on Feb. 5th, Dr. WALTER SMITH being in the chair.

Dr. T. P. C. KIRKPATRICK showed a boy suffering from a condition which was described as Lupus Pernio. The patient was affected for three years with sore hands, sore ears, and at one time had a similar affection of his face. The hands were said to be a great deal better now, but there was still much thickening, swelling, and ulceration. When first seen the condition of the hands was much more of the chilblain type, but the face had quite recovered except for some little scarring. He was treated with emollients, and the hands were kept wrapped up.—Dr. WALTER SMITH found fault with the nomenclature, and said the name lupus should only be used when the condition was tuberculous.

Sir JOHN W. MOORE related a case of a married woman, aged 65, admitted to the Meath Hospital in October, 1914, suffering from various symptoms attributable to the alimentary tract, as well as from uterine pain, discharge, and hæmorrhage. The condition of uterine cancer was recognised and pronounced inoperable by Dr. F. W. Kidd. In conjunction with Dr. W. C. Stevenson, Sir John Moore had the tumour treated with radium emanations from Oct. 23rd to Dec. 29th, an average of 20 millicuries being given for 13½ days. During all this time she had six old capillary tubes in a little metal case inserted into the cervical canal. They contained an average of 4.17 millicuries. She received altogether 6602 milligramme hours of radiation. Six needles were inserted 11 times, 24 each into the anterior and posterior lip of the cervix and fornix and 18 into the vaginal wall. Posterior fornix and lip of cervix, treated for 4 days 21 hours, received 1872 milligramme hours—average 16 millicuries. Anterior fornix and lip of cervix, treated for 6 days 12 hours, received 2162 milligramme hours—average 13.8 millicuries. Vagina, treated for 4 days 4 hours, received 1218 milligramme hours—average 8.1 millicuries. Cervical canal and uterus, treated for 13 days 6 hours, received 1350 milligramme hours—average 4.1 millicuries per hour. The constitutional febrile disturbance which followed the various séances was noteworthy. The patient left the hospital considering herself cured. There was certainly remarkable shrinking in the growth; the pain and hæmor-

rhage and foul discharge had ceased, and the patient's general condition was excellent.—Dr. C. M. O'BRIEN said the whole virtue of radium depended on the action of radium emanation on the cancer cells and also on the stimulation of the connective tissue cells. He recalled a case of his which was treated in 1906 for epithelioma of the right cheek, which was looked upon as cured and remained well for six years, and at the end of that time the patient returned with large infiltrating glands absolutely inoperable from the surgical standpoint.—Dr. W. M. CROFTON said that one would think that radium would produce a local effect only on the cancer, but it appeared that there was always a general reaction, and he suggested that part of this was due to the absorption of the cancer cell into the circulation, so that not only might the radium act as a destructor of the cancer cells, but it might lead to a certain amount of immunity.—Dr. W. G. HARVEY said Dr. Crofton's point should not be lost sight of. He found that when a tumour in a mouse disappeared after treatment with X rays it was almost impossible to reinfect that mouse with cancer. From that he considered that the absorption of the cancer did produce some kind of protective bodies.—Mr. SPENCER SHEILL said if it was assumed that the diagnosis was correct without microscopic examination, Sir John Moore was to be congratulated. If nothing more than the cessation of pain and apparent improvement had been achieved, that was still a distinct gain.—Dr. SMITH said the physics of radium was a complicated subject, and the question of its physiological action, which was of greater interest, was still more complicated. It seemed to him that the most fundamental thing in radio-activity was that it was a branch of phototherapy, and might be brought into line with Finsen light. He suggested that it was a photo-electrical treatment influenced largely by the wave-length of the light and possibly acting on the tissue. He suggested that in all those radio-active elements there might be a stimulant action; hence the possibility of too feeble an application of radium stimulating cancerous growths.

SECTION OF SURGERY.

Exhibition of Cases.—The Theory and Technique of a New Method of Radium Therapy.

A MEETING of this section was held on Jan. 29th, Mr. F. CONWAY DWYER, the President, being in the chair.

Mr. M. R. J. HAYES showed a man, aged 45 years, part of whose tongue was removed two years ago last June by Mr. S. S. Pringle for malignant disease. Mr. Pringle intended later to remove some enlarged glands in the neck, but the patient would not permit this. The tumour increased in size, and last autumn the patient came to the dispensary of the Mater Misericordiæ Hospital and it was decided to try radium emanations. When the patient was first treated by radium in the middle of December there was a swelling on the side of the neck about the size of a goose egg, soft about the centre, and apparently breaking down. Three needles were inserted from above downwards and three from below upwards and left in for 24 hours, when they were reinserted at right angles to the former positions. They were again inserted in a position which might have escaped radiation in the previous two insertions. There was no general reaction, but a slight local one. When the needles were withdrawn there was no hæmorrhage, and from that time the patient showed improvement. After Christmas the tumour was only half of its original size. Another insertion on Jan. 13th was tolerated for only a few hours. There is vast improvement. The primary growth was in the tongue. The submaxillary gland was at no time involved. The swelling now is only one-third of the original size.

Mr. R. C. B. MAUNSELL showed a man, aged 61, treated for Cancer of the Tongue by Radium Emanations. In April, 1913, the patient first noticed a lump under the tongue to the left of the frænum, which gradually increased, and ulcerated rapidly and spread. When first seen the man looked cachectic. There was ulceration of the left side of the middle third of the tongue, and a large ulcer under the tongue which destroyed the frænum. Considerable pain and enlarged glands on the left side but none on the right. A piece of the growth removed for examination, and reported on as a rapidly growing carcinoma. Radium was inserted Dec. 2nd. The position in which

the six needles were placed and the method adopted for fastening them were demonstrated. The only reaction was a rise in temperature to 100° F. Within a few hours the pain was relieved. The needles were left in for 23½ hours and inserted next day into the submaxillary gland, and the following day reinserted in the mouth. The treatment was then stopped awhile. On Dec. 24th the cancerous ulcer was completely covered with epithelium. The teeth were then extracted and 24 millicuries of radium again inserted, and the patient went home for three weeks. On his return he was in good spirits and greatly improved in general health. Since then the neck was radiated as a prophylactic. Glands were to be felt in the right side of the neck when he came back. An interesting point was that when a piece of the healed former cancerous growth was examined it was found to be covered over with practically normal epithelium, underneath which was a lot of fibrous tissue, and in one part of the section a mass of carcinomatous cells was to be seen, but there was no mitosis. There were a few giant cells. The point of interest was that although clinically the ulcer had healed over with epithelium there were still carcinomatous cells. Two sections were shown.

Mr. MAUNSELL also showed a patient suffering from Primary Cancer of the Neck under Radium Treatment, the interesting point being that the patient had a reaction each radiation, whereas the other patient shown had not.

Mr. WALTER C. STEVENSON brought forward four cases treated by Radium Emanation Needles. The first case was that of a man who had been shown two months previously. He had 13 radiations of six needles. The growth was considered to be a sarcoma. The opinion was expressed that sarcoma did better than carcinoma under radium treatment. The second and third cases affected the tonsils. The fourth patient had a tumour of considerable size on the face. He was X rayed about six years ago. Radium was tried, and the lump which was there had disappeared. The lump was considered to be an epithelioma following X ray treatment for lupus.

Mr. STEVENSON also read a paper on the Theory and Technique of a New Method of Radium Treatment by means of fine serum needles containing up to 5 millicuries of radium emanation in fine glass capillaries, as supplied by the Royal Dublin Society. He pointed out that the filtering off of soft rays, both in X ray and radium therapy, was simply a method of obtaining uniformity of radiation, as if the soft rays from an X ray tube or from radium, whether applied on the surface or buried in a tumour in the ordinary way, were not filtered off, there would be over-exposure and injury to the skin or tissues in the immediate neighbourhood of the source of radiation. By employing a number of sources of radiation, or illumination, as suggested by Professor Joly, in needles inserted within soft ray range of one another, uniformity of radiation was obtained with the minimum of filtering. The fineness of the needles permitted of their being withdrawn and reinserted in intermediate position for greater uniformity, allowed the growing edge of the tumour to be systematically dealt with, and, most important, increased the therapeutic value of a given quantity of radium, as the soft rays, which were the most numerous and therapeutically effective, were not wasted. It was not soft rays but over-exposure from soft rays that did the harm. Mr. Stevenson showed four patients and lantern slides of some other of the 22 cases of inoperable malignant disease treated since April 1st, 1914. He never was able to procure more than 24 millicuries of emanation at one time. The cases treated included malignant disease of the tonsil, tongue, and pharynx (3); floor of mouth, cervix and vagina (4); breast (2); glands in the neck (2); abdominal tumour. Six needles at a time were inserted into the tumour. All the cases in which this method was used proved that the treatment might be safely employed with marked benefit to the patients, some of whom were enabled to return to work.—The PRESIDENT said the paper opened up a subject which was only in its infancy, and every contribution to it was of great importance. He had no practical experience of the treatment.—Dr. O'BRIEN suggested the advisability of bringing the cases exhibited before the section from time to time in order that the success or otherwise of the treatment might be followed. The therapeutic use of radium entirely depended on its destructive power on cancer cells. There was no class of case more

discouraging as regards cure or treatment than those shown that evening. He thought the method described open to the objection that a cancerous growth being penetrated the patient might be exposed to the risk of the dissemination of cancer cells, though in a lesser degree than in any other method he knew of.—Professor E. J. McWEENEY said, as a member of the committee of the Royal Dublin Society, entrusted with procuring a supply of radium, he took a deep interest in the results, and by arrangement with Mr. Stevenson he had obtained specimens of the growths. Four or five of them were typical squamous epitheliomata, and others were sarcomata. There could be no doubt as to the malignancy of the growths; he considered that they would have caused the deaths of the patients speedily. He had not yet had an opportunity of examining them histologically after radium, but he had seen two microscopic sections cut from Mr. Maunsell's case, and they showed a most remarkable change. While further results must be awaited before passing judgment, the results showed clearly that a great amount of suffering had been alleviated by the treatment. The present contribution by Mr. Stevenson constituted a distinct advance in the surgical technique of the treatment of cancer carried out by these tubes with a small amount of emanation in each. He wished to acknowledge the great technical skill placed at their disposal by Mr. Moss, who devised the method of condensing the emanations at the temperature of liquid air and having it sealed up in these tubes in determined quantities.—Mr. HAYES said the instructions stipulating that the supply of radium emanations should be used for the particular patient for whom it was obtained, and not for any other case, caused a great amount of emanation to be lost, and he suggested that if the society could make some arrangement by which this waste of emanation could be utilised in other cases it would be an advantage. There was one matter which he considered they should be definite about. In X ray therapy dosage had been definitely settled, and it was just as well to realise that radium in ignorant hands was dangerous. He strongly urged the absolute necessity of fixing definitely what the dose should be in millicurie minutes. He doubted if there was any danger of dissemination of cancerous cells by the introduction of the needles into the growth, as the destruction in the tumour itself was relatively small; and, moreover, he believed that as a result of the immediate effect of the radium emanation occlusion of the lymph channels took place. He considered that there was not one of the cases shown that would not have died within a few months had they not undergone the treatment.—The paper was discussed also by Mr. W. I. DE C. WHEELER, Mr. MURPHY, Mr. MAUNSELL, and Mr. A. J. MCA. BLAYNEY, and Mr. STEVENSON replied.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—A quarterly meeting of this association was held at the rooms of the Medical Society of London on Feb. 18th, Dr. David G. Thomson, the President, being in the chair.—Mr. Roy M. Stewart (Prestwich Asylum) read a paper, illustrated by photomicrographs, on Meningo-Vascular Syphilis. It was devoted to the consideration of a single case, whose morbid anatomy afforded a striking example of the effects of the syphilitic virus on the supporting, enclosing, and vascular structure of the central nervous system; also to setting forth the retro-olivary syndrome dependent upon thrombosis of the posterior inferior cerebellar artery which the patient exhibited. As a brain might show both interstitial and parenchymatous change difficulties of diagnosis might arise, as there was no sign or symptom in dementia paralytica which could not be present in subacute meningo-vascular syphilis, and except for the Wassermann reaction one could not be certain whether a lesion was entirely parenchymatous. The patient who formed the subject of the communication was an unmarried woman, aged 47, who was in the asylum 17 months. She was anæmic and in poor physical condition. Near the right knee were scars of a syphilitic character. Her pupil reaction and reflexes were normal, but soon after admission there was ptosis on the left side. Mentally she was deluded and excited, believing that people were following her about to injure her. Speech was incoherent. During the

succeeding months there was progressive mental deterioration; she became restless, destructive, faulty in her habits, and was disorientated. Eleven months after admission she had a slight seizure affecting the left side of the face and right upper extremity, and subsequently a number of such; she also complained of failure of vision in the left eye. Speech was slurring and she had facial tremor. Three months before death she became bed-ridden and showed a powerful disturbance of memory. Two days before death she had a convulsion and symptoms of acute bulbar paralysis. She remained to the last conscious of her mental and physical disabilities. The whole picture was one of diffuse cerebral syphilis. At the necropsy the brain showed slight general atrophy. The pia-arachnoid was slightly thickened and milky along the frontal sulci, which were widened. There were gross macroscopic lesions and recent softening on both hemispheres. On making a horizontal section in Marie's plane several remarkable cavitations were seen in the white matter of $\frac{1}{2}$ cm. to 4 cm. in depth. The cerebral vessels were tortuous and very atheromatous. In the spinal cord there was a disappearance of many nerve fibres from all parts of the section. The lateral columns suffered especially, and there was a great increase in glial fibres. The myelinated sheaths showed every gradation of change, from slight loss of myelinated to complete disintegration. The pia mater investing the cord had undergone very great thickening and showed an intense cellular infiltration. Perivascular change was observed around all the large vessels, there was slight intimal proliferation in the arteries, and many of the veins showed engorgement and hyaline thrombosis. The nerve cells showed atrophic pigmentary degeneration. Mr. Stewart then gave a demonstration of the microscopical findings in the case, and remarked that, in regard to the optic nerves, a very large number of funiculi, especially those at the periphery, exhibited sclerosis. Their nerve fibres had largely disappeared and were no longer stained by Weigert's method. Large branching strands of neuroglia fibres could be seen passing among the nerve bundles. The symptom complex to which he wished to direct attention was as follows: Sudden onset, without loss of consciousness; giddiness, hemiataxia with tendency to fall to the affected side; difficulty in deglutition, phonation, and appreciation of pain, heat, and cold over part or the whole of the trigeminal area on the side of the lesion, and a corresponding loss of pain and temperature sense on the opposite side of the body from the face downwards; motor power, touch, tactile discrimination, deep pressure, and muscular sense were intact; paralysis of ocular sympathetic on the side of the lesion. It was clearly a case of crossed dissociated anaesthesia. He discussed the microscopic findings at length, and showed photographs.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—

A meeting of this society was held on Feb. 12th. Mr. Herbert Jones, the President, being in the chair.—Professor Sims Woodhead read a paper on the Best Way in which Civil Health Officers can give Assistance to the Military Authorities in Time of Mobilisation or of War, and said that the Local Government Board, knowing the value of the experience of medical officers of health, early recognised that their help might be of enormous value to the military authorities, and soon after the outbreak of war sent out a series of circulars to both sanitary bodies, civil and military, inviting the confidence of one and placing the services of the other at the disposal of the military authorities. The chief features essential for the smooth working of the civil and military authorities side by side were a free interchange of information and ideas, which could only be effected where there was a readiness to help; avoidance of bones of contention, which could only be done by a willingness to delimit spheres of observation as far as possible and by accepting without cavil or mistrust slight invasions of those spheres; subjection of official interests to the general convenience; and mutual trust and forbearance. The medical officer of health could exert little or no control over meat supplies or food supplies of any kind. The inspection of rations must be left entirely to the company officers and to the Royal Army Medical Corps Sanitary Service. The military authorities, although nominally applying to the police for information concerning open spaces in which camps might be erected, were to a very large extent dependent upon information that could only be supplied to them by the

medical officer of health. He could keep them posted as to the places to be avoided. He had a knowledge of the character of the population, of the localities in which undesirables of both sexes were concentrated, the type and efficiency of the sewage and drainage of an area, the character of the soil, and the facilities for obtaining water and for the disposal of camp refuse. The military authorities must be entirely dependent upon the medical officer of health for information that was vital to the success of their efforts to keep the troops healthy, and they must rely upon him for accommodation of their fever patients in his isolation hospital. Referring to cerebrospinal meningitis, he expressed the opinion that the disease was associated essentially with overcrowding and bad ventilation, and that the latter rather than the former was the determining factor; that it was no longer a jail fever, in civilised countries at any rate, as jails were now as well ventilated as dwelling houses; and that it was a disease of the barracks and not of the open camp, though when weather was bad and tents good the conditions for its development even under canvas were not wanting. An outbreak of the disease would be got rid of by thorough ventilation of the military huts. This was of far greater importance than isolation.—Dr. J. S. Tew said that he was able to supply the military authorities on the outbreak of war with a complete plan of all the water mains in his districts and to indicate the locality of wells. He referred to the importance of cheap bathing facilities for soldiers and of adequate means of disinfection.—Dr. Veitch Clark said that in Croydon an enormous amount of disinfecting had been done by the corporation free of charge, and that some public baths had been given up entirely to the soldiers on payment by the military authorities of a weekly sum equal to the average takings. He considered that much good had been done by making out of bounds certain streets in which infectious diseases were prevalent.—Dr. A. W. J. MacFadden referred to the excellent work that was being done by medical officers of health, at the instance of the Local Government Board, in the examination of the food-supplies of the army. He knew that the War Office was aware of the services of medical officers of health in this direction.—Mr. T. W. N. Barlow regretted that the military authorities did not always seek to coöperate with the medical officer of health, whose advice was not invariably followed.—Dr. R. A. Lyster, Dr. A. H. Bygott, Dr. C. Sanders, and the President also took part in the discussion.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held in the Metropolitan Hospital on Feb. 19th, Dr. David Ross, a past President, being in the chair.—Dr. Philip Hamill conducted a clinical demonstration.—Dr. Edmund Cautley showed: 1. A girl, aged 15 years, who though looking well and having no pains or fever, had a Diastolic Murmur at the Base of the Heart conducted to the right side of the sternum. The point of maximum intensity was in the second and third left interspaces. A skiagraph showed hypertrophy of the right ventricle.—A discussion followed, in which Dr. Leonard Williams, Dr. Hamill, Dr. A. Feiling, and Dr. H. E. Symes-Thompson joined, and it was ultimately agreed that the case was one of pulmonary regurgitation. 2. A boy, aged 9 years, with Subaortic Stenosis.—Dr. Hamill showed (for Mr. Dive and on his own account): 1. A boy, aged 8 years, with Pulmonary Stenosis. 2. A man, aged 28 years, with Pulmonary Stenosis and Tricuspid Regurgitation. 3. A girl, aged 9 years, with Pulmonary Stenosis and Patent Ductus Arteriosus with marked Cyanosis. 4. A girl, aged 11 years, with Patent Ductus Arteriosus, who suffers from epileptiform seizures. 5. A girl, aged 18 years, with Pulmonary Stenosis and Patent Foramen Ovale (? Defective Ventricular Septum), marked Cyanosis, and Clubbed Fingers. 6. A girl, aged 12 years, with Complete Transposition of Viscera. 7. A man, aged 20 years, with Transposition of Heart only, Stenosis of Ostium, and probably a Defective Auricular Septum. 8. A man, aged 34 years, with Heart drawn over to the right side by Fibrosed Right Lung. 9. A youth, aged 15 years, with Mitral Stenosis and marked Clubbing of the Fingers. 10. A woman, aged 30 years, with Chronic Inflammation of Both Submaxillary Ducts who spontaneously passed a salivary calculus.—Mr. Henry Curtis showed a specimen removed from a case of Multiple Urethral Fistula, one in the right groin and three in the perineum, in a West Indian Negro.

Reviews and Notices of Books.

The Extra Pharmacopœia of Martindale and Westcott.

Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B. Lond., D.P.H. Sixteenth edition. In two volumes. London: H. K. Lewis. 1915. Vol. I., pp. xl. + 1113, price 14s. net; Vol. II., pp. viii. + 469, price 7s. net.

SINCE the publication of the last edition barely three years ago a very considerable amount of attention has been directed to different topics which are dealt with in these volumes. The revision has entailed drastic excision of many details to make room for more recent information and for somewhat lengthy reports of many matters connected with proprietary medicines. The first volume is that which will be most frequently consulted by medical men, and it certainly succeeds in supplying concise accounts of current expressions of opinion on the trend of therapeutics. The second volume is intended as a supplement for further study, and deals mainly with the results of analytical or experimental investigations. The references to the new British Pharmacopœia are necessarily very numerous, though the compilers save much space by frequently indicating, by the abbreviation "Off." the advisability of looking elsewhere for further information regarding official requirements. The remarks on the metric system in the present edition will come as a surprise to those who remember the whole-hearted recommendations of former editions, in which it was advocated as entailing far less mental calculation and therefore very much less likelihood of error. It appears a little inconsistent to advocate uniformity in nomenclature at the top of the page, and a little lower down to state that though the word "mil" is now adopted officially, the use of "cubic centimetre" with the contraction cc. is retained throughout these volumes.

Among the more important new features we find, alphabetically arranged in the preface, brief references to all that is newest in the domain of therapeutics, together with a few useful indications of the lack of satisfaction expressed about some measures which, until recently, had met with wide acceptance. These pages are extremely instructive, although they often suggest the idea that many of the vaunted remedies of recent introduction may have an ephemeral existence. It is evident, however, that the compilers of the Extra Pharmacopœia are fully alive to this, and that, not content with merely making an abstract of current literature, they initiate independent investigations to test the validity of the claims made on behalf of new remedies, and have not hesitated to add to the list of new aspirants for favour. For example, having found certain objections to cod-liver oil, they suggest the use of poppy-seed oil as a suitable substitute, and quote clinical observations in its favour. Many busy men will be grateful for the amount of space devoted to radiology, to radium, and to radioactive waters, since it is difficult elsewhere to find so much information in so compact a form. The same remark is equally applicable to the sections on vaccines, on tuberculin treatment, and on organotherapy.

In the second volume there is greater scope for dealing critically with the new British Pharmacopœia, and although some strong remarks are

made about the absence of a standard for dried thyroid gland, it is evident that most of the official analytical processes and methods of extraction meet with approval. It is somewhat difficult to criticise this volume owing to the multiplicity of subjects included and to the strange order in which they are placed. Each section, viewed by itself, affords a vast amount of instructive and suggestive information, but the sections succeed each other with a bewildering lack of connexion, and occasionally some seem to have strayed from their proper logical position. Thus in rapid succession we pass from animal organotherapy to sterilisation, then to synthetic notes on physiological effect in comparison with chemical constitution; from this to physiological standardisation, and then to proprietary medicines and their approximate composition. The last-named section gives a very fair précis of some of the evidence taken by the Select Committee appointed to inquire into the conditions prevailing in the United Kingdom regarding the sale of patent and proprietary medicines, to which is appended a list of proprietary medicines, with a moderate amount of information of their composition, culled from various sources. From this list it is evident that the composition of some has been altered from time to time; it is also clear that no information is forthcoming with regard to certain largely advertised proprietary preparations. The authors remark that the various scientific journals do not give a complete report of all the evidence given before the Select Committee, and they have clearly done their best to make good the deficiencies. The notes on the antiseptic power of numerous chemical and disinfectant preparations have been very carefully revised, and include records of the results obtained by numerous independent observers. Many of the experiments have been conducted by one of the authors, and in tabular form the germicidal action of those of practical value is clearly set forth. The analytical memoranda relating to the examination of urine, blood, fæces, &c., have been brought up to date by the inclusion of many new tests and by useful summaries of recent discussions, while the bacteriological notes supply considerable detail which will be sure to be frequently referred to by those engaged in this branch of special laboratory work.

Sufficient has been said to warrant the conclusion that this new edition is likely to receive the same welcome afforded to its forerunners. Notwithstanding the vast amount of information afforded, the clearness of the type and the use of thin paper have enabled the production of two volumes of convenient size and agreeable appearance. Those engaged on the revision are to be congratulated on having produced a work of great utility.

Mentally Defective Children.

By ALFRED BINET and TH. SIMON. Authorised translation by W. B. DRUMMOND, M.B., F.R.C.P. Edin. London: Edward Arnold. 1914. Pp. 179. Price 2s. 6d. net.

WE are glad to welcome this useful translation of the work of M. Binet and M. Simon. The care and education of the feeble-minded have in recent years been brought much to the fore as a matter of pedagogical, social, and medical interest. Volumes have been written, an immense amount of work has been accomplished, and a few results have been attained. So great has been the enthusiasm in certain quarters that there has seemed almost a

danger of the child being lost sight of in the multitude of tests and other psychological experiments to which it might appear he was about to be subjected.

The great merit of Binet and Simon's book has always seemed to us that it has focused the attention of those who have to do with the education of the feeble-minded upon practical inquiries as to when a child is to be considered feeble-minded, to what extent it may be expected that good results will arise from education, and in which cases a large outlay of patience, money, and time is justifiable. The Binet-Simon tests have now a world-wide reputation, which they have merited on account of their simplicity, practicability, and usefulness. Their use will, we scarcely doubt, be widespread, and upon them will be based a classification of the feeble-minded which, from the pedagogical point of view, will be of great value.

The translation has, we consider, been particularly well done, and while the English is excellent the style retains the incisive nervous qualities of the original French.

Infection and Resistance: An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Body from Infectious Disease.

By HANS ZINSSER, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, &c. With a chapter on Colloids and Colloidal Reactions by Professor STEWART W. YOUNG, Department of Chemistry, Stanford University. New York: The Macmillan Company. 1914. Pp. 546. Price 15s. net.

So many books dealing with the subject of immunity have recently seen the light that we are inclined to view any newcomer in this field with suspicion, but the present volume has quite definite merits of its own. It gives a clear account of the phenomena of immunity, written largely from the historical point of view, enabling the reader to follow to some extent the gradual development of knowledge. He is thus led to take an intelligent interest in the subject, and to appreciate the fact that accepted doctrines at this, as at earlier periods are provisional and subject to continuous modification with the growth of experience. References are given to the original papers quoted, a feature which adds considerably to the value of the book.

With regard to the plan of the book, the first chapter deals with the virulence of organisms, and the second with the nature of bacterial poisons. Chapters III. and IV. treat of the forms and mechanism of immunity, and Chapter V. of the relations of toxin and antitoxin. In Chapter VI. we are introduced to the phenomena of bacteriolysis and cytolysis, and the two following chapters deal with complement and its fixation. Chapters IX. and X. are devoted to agglutination and precipitation respectively, while the following four discuss phagocytosis and its relations to vaccine therapeutics and to opsonic determinations. Chapters XV. to XVIII. are devoted to anaphylaxis and the clinical conditions connected with it, while Chapter XIX. deals at some length with serum treatment and prophylactic inoculation. Some account is given in Chapter XX. of Abderhalden's protective ferments, and the concluding chapter contains Professor Young's epitome of our existing knowledge of the properties of colloids—a subject intimately connected with the reactions concerned in immunity.

We could indeed have wished that this last chapter had been even longer and fuller, but for its presence at all we may be duly thankful.

The volume is intended for the use of students of medicine, and we hope it will find many readers among them, as in the form here adopted it affords better mental pabulum than more dogmatic text-books and other forms of pre-digested matter which are too commonly relied upon in these times of continual examinations and general educational haste.

Food Products.

By HENRY C. SHERMAN, Ph.D., Professor of Food Chemistry, Columbia University. New York: The Macmillan Company. 1914. Pp. 594. Price 10s. net.

THIS is a useful book giving considerable information upon the production and preparation of food and food products. Indications are given as to the relative economic importance of the industries concerned, and a valuable feature of the book appears in a section on the special characteristics of composition, digestibility, nutritive value, and place in the diet of all known foods. The analyses given are abundant, and form a useful reference. The literature quoted is extensive.

The sections on the administrative control of food supplies are of course based on the provisions of the laws of the United States. This does not detract from the value of the author's treatment of general considerations or from his account of industrial methods.

The Sale of Food and Drugs Acts, 1875 to 1907, and Forms, Regulations, Orders, and Notices Issued thereunder, with Notes and Cases.

By the late Sir WILLIAM J. BELL, LL.D., Barrister-at-Law. Sixth edition, by CHARLES F. LLOYD, Barrister-at-Law; the Chemical Notes revised and enlarged by R. A. ROBINSON, Barrister-at-Law. London: Butterworth and Co. and Shaw and Sons. 1914. Pp. xxxix. + 310 + 46. Price 8s. 6d. net.

LET us say at once that Mr. Robinson's useful notes upon the points likely to arise and to be submitted to the analyst in connexion with prosecutions for adulteration have been added to with advantage and placed in a more convenient position in this edition than in its predecessor. The present volume constitutes the sixth issue of "Bell's Sale of Food and Drugs Acts," and for the first time the original editor's name is prefixed with the words "the late." Mr. Lloyd and Mr. Robinson were already responsible, however, for the fifth edition issued in 1910. Not a great deal of legislation has occurred since that date to swell the bulk of the present volume, and Mr. Lloyd is to be congratulated upon having been able to keep its dimensions in check by omissions of practically obsolete matter which is not likely to be missed. The only serious legislative addition which he has had to insert is the Milk and Dairies Act, 1914, and in making reference to other new statutes he has only chronicled a doubt as to who is to be deemed the purchaser of drugs under the National Insurance Act, the committee or the patient, and noted the effect of the Forgery Act, 1912, upon proceedings in respect of forged certificates and warranties, where these have hitherto been regulated by Section 27 of the Food and Drugs Act, 1875. Otherwise recent cases and decisions have afforded the principal matter for editorial consideration.

We may note that the ingenuity of the inventor has found scope since the last edition in the adulteration of margarine with paraffin. Observations upon this subject are to be found in a memorandum of the Local Government Board, a number of circular letters from Government departments having been included in the appendix to the present issue. These, together with forms of information and summons, should be found convenient additions to a volume which for some time has been recognised as a useful text-book.

LIBRARY TABLE.

The Passing of Vesalius. By G. MATHESON CULLEN, M.D., B.Sc. Edin. Reprinted from the *Edinburgh Medical Journal*, November, 1914.—Dr. Cullen, in his small monograph on "The Passing of Vesalius," has made a minute examination of the original sources of information, and has endeavoured in the true historical spirit and method to appraise impartially the value to be assigned to each authority. The most important of these, because that upon which the prevailing view is based, is a letter alleged to have been written in 1565, the year following the death of Vesalius, by Languetus to his friend Casper Peucer, physician and son-in-law to Melancthon, wherein the story is found that the Spanish Inquisition satisfied its enmity against Vesalius by a charge of impiety, for his (alleged) opening of the body of a Spanish nobleman to ascertain the cause of death, when the heart was found to be still beating. For this, it is stated, the Inquisition determined to sentence him to death, but at the entreaty of the king changed the sentence to an expiatory pilgrimage to Palestine and Mount Sinai. Nothing appears to have been known of the version contained in this letter, however, until Melchior Adam published it in 1620, in his *Vite Germanorum Medicorum*. Even then it failed of credence until Boerhaave and Albinus accepted and republished it in 1725, when it became more or less generally adopted. But Languetus speaks of it only as a tale he had heard from Spain, without even referring to his authority. Beyond a vague statement by Paré there appears no other evidence in support of the alleged "vivisection." As to the interference of the Inquisition Languetus stands alone, and in view of the prevalent animosity against that body, it seems incredible, as Dr. Cullen points out, that had the charge been true it should not have gained currency in the copious polemical literature of the time, for several of Vesalius's friends were of the anti-Spanish and Protestant party; his widow's brother-in-law by her subsequent remarriage was a partisan of William of Orange; Languetus himself was the accredited agent of Augustus Elector of Saxony; the friends of the nobleman in question remained silent on the subject; and lastly, in spite of the Inquisition's well-known punctiliousness in recording minutes of their judicial proceedings, there is no trace to be found of any official record concerning it. Dr. Cullen seems, therefore, to be quite within the bounds of probability in concluding that the story is a forgery fathered on Languetus.

Other reasons that have been assigned for the pilgrimage are a wager (Metellus, 1565), the enmity of the Galenists (Argentarius), a vow for recovery from sickness (Clusius, 1564, Solenander, 1566, but not printed until 1722, Dudith, 1582, who explicitly denies that Vesalius was exiled), and a

desire to visit the holy places on a pilgrimage from religious motives (Pantaleon, 1565, Zuinger, 1586, Thuanus, "for his soul's sake," 1606, Miræus, 1609, Melchior Adam, 1620, and Sweetius, 1628). Dr. Cullen passes all these authorities under careful review, and, as it seems to us, makes out a good case for the conclusion that there is no reason to suppose that Vesalius was other than a sincere Christian believer, and that the reason he left Spain was "that in consequence of a vow he was anxious to obtain the merit of making a pilgrimage to the places which had been hallowed by the living presence of our Saviour."

Vade Mecum for the Use of Officers and Interpreters in the Present Campaign. By EUGENE PLUMON. New edition. London and Paris: Hachette et Cie. 1914. Pp. 134. Price 2 francs.—This is a manual that can be easily carried in a breast pocket, and within the limits that the author has chosen contains all the technical terms likely to be required in intercommunication between our troops and their Allies, as well as ordinary useful words, arranged according to subjects. It is not a conversation manual, but a classified vocabulary of military, topographical, and engineering terms and expressions. The definition of military terms is not always quite accurate: "accoutrements" do not include "arms," which are certainly part of "a soldier's outfit"; the definition of "echelon," as given, is incomplete and erroneous; that of "interval" substitutes "of" for "or," which makes it meaningless. There is, however, a very useful selection of words in the two languages, which makes the book useful and handy.

The Practitioner's Guide to Clinical Research: Alphabetically arranged in Sections. Published by the Clinical Research Association, Limited, Watergate House, York Buildings, Adelphi, London, W.C. Pp. 149 + xlix.—This little book is doubtless primarily intended for the use of members of the Clinical Research Association, containing as it does advice on the subjects suitable for laboratory assistance and the scale of fees payable for such aid. Nevertheless, it is also of interest to the general reader as showing at a glance the present state of knowledge in the field of applied pathology—a field which has grown enormously in recent years and is constantly extending. As examples of such recent extension we may note the complement-fixation tests for glanders and for hydatid disease here described. The methods of collecting blood and other materials for examination are also explained—a further useful feature.

The Mental Health of the School Child. By J. E. WALLACE WALLIN. London: Humphrey Milford. Oxford University Press. New Haven: Yale University Press. 1914. Pp. 462. Price 8s. 6d. net.—This book consists of a collection of papers and addresses written to advocate the support and foundation of "psycho-educational clinics" and as contributions to a "new science of orthophrenics and orthosomatics." Orthosomatics or physical orthogenesis is defined by the author as "any process through which malfunctioning physical organs may be made to function aright, or by means of which healthy organs may be continued at normal functioning so that the physical organism may develop to its maximal potential," and orthophrenics or mental orthogenesis as "any process, mental or physical, of righting any malfunctioning mental power so that the mind may reach its highest developmental

possibilities." The enrichment of our vocabulary proceeds apace, and those who regard the invention of a new term as an advance in knowledge will welcome these additions. The new problems presented by orthosomatics and orthophrenics are to be the subject-matter of "clinical psychology," the claims of which to recognition as an independent science are supported at length by the author. "The central aim of the psychological clinic is psychological diagnosis and consultation and advice in regard to mental cases, particularly children." The author occupies considerable space in support of theses such as these. His style is unfortunately somewhat diffuse, and this quality is accentuated by the repetition which he regards as unavoidable in the publication of a series of scattered studies dealing with closely related topics.

The B.D.H. Guide to the British Pharmacopœia, 1914. London: The British Drug Houses, Limited. 1915. Pp. 175. Price 1s. net.—This is a very pleasant book, of convenient size, well printed, and clearly arranged. It is intended to save the time of those who might wish to compare the B.P., 1914, with that of 1898. Each monograph is mentioned in turn, and when changes of importance occur the fact is noted, the degree of importance being indicated by a single or double marginal line. Greater courage is displayed than in the parent volume, to which it is a guide, for the mystery surrounding new articles like barbitone and hexamine is dispelled, and we are plainly told that they have the same chemical composition as certain proprietary substances. The general commentary at the beginning of the book deserves careful study, otherwise the value of many brief statements may be missed; for example, the difference between "no change" and "no ostensible alteration." Although the compilers of this book show due regard for accuracy in all relating to the new Pharmacopœia, they are in error in stating that in 1898 æther was required to be prepared from *duty-paid* rectified spirit.

New Inventions.

VACCINE BOTTLES FOR HYPODERMIC SOLUTIONS.

It is needless for me to claim any originality except for the application of Sir Almroth Wright's vaccine bottles for hypodermic medication. On the battlefield in particular, where morphia is the sheet anchor of the first-aid surgeon, such an arrangement of keeping the morphia solution would be a great advantage over the glass capsules or the compressed drugs.

In order to ensure as great a sterility in hypodermic medication as possible glass capsules, each containing single doses of a particular preparation, have been put on the market in place of the compressed drug. In practice the disadvantages attending these devices are: (1) The space the capsules occupy; (2) the fragility of the containers; (3) chances of accidental contamination in filing the capsule and breaking the neck thereof; (4) assistance required in holding the capsule while drawing the contents into the syringe; (5) the difficulty of obtaining the capsules in India (except in Presidency towns); and (6) the cost, especially in the treatment of malaria and in hospital practice, and even in general practice. To obviate these difficulties I am now using Sir Almroth Wright's rubber-capped vaccine bottles. In two months I used more than 100 doses from the vaccine bottles without having a single accident.

The method of preparing the solutions for hypodermic medication and putting them in the bottle, &c., is as follows: 1. Make the solution of the required alkaloidal salt in

distilled water (e.g., 3 gr. of quinine bihydrochloride to 1 c.c. or even $\frac{1}{2}$ c.c.) and filter. 2. Charge a thoroughly cleaned and sterilised vaccine bottle with the solution (1). Cap the bottle with a thick rubber cap. 3. Thrust a small section of hollow wire or a fine hypodermic needle through the cap near the edge to serve as an air vent. 4. Sterilise the bottle and contents in an autoclave. 5. After sterilisation and cooling pull out the wire or the needle and seal the hole with collodion. 6. Melt some hard paraffin and let it boil; then dip the rubber-capped neck of the bottle into the melted paraffin. This would prevent any possible leakage about the neck or top and also be a protective layer for the rubber cap (a great desideratum in the tropics).

The method of use is to sterilise the surface of the rubber cap by transferring to its surface a drop of undiluted lysol and then, turning the bottom of the bottle upwards, puncture through the rubber with the needle of a sterilised hypodermic syringe and withdraw the desired quantity of the solution. The hole seals itself and no collodion or re-paraffining is necessary, which is one of the advantages of such a cap.

S. N. GORÉ, L.M. & S. (Bombay Univ.),
First Assistant to the Chemical Examiner and Bacteriologist,
United Provinces; and Lecturer on Chemistry and
Physics, Agra Medical School.

INFLUENZA IN BELFAST.—Our local correspondent states that there is a very widespread epidemic of influenza in Belfast at present, the main feature of which is the severe throat complications—acute follicular tonsillitis and laryngitis—and occasional gastric symptoms. Young people seem to be very susceptible.

ROYAL METEOROLOGICAL SOCIETY.—At a meeting of this society on Feb. 17th a paper on Observations of the Upper Atmosphere at Aberdeen by means of Pilot Balloons was submitted by Mr. A. E. M. Geddes. A paper from Mr. V. G. Anderson, of Melbourne University, was also read on the Influence of Weather Conditions upon the Amounts of Nitric Acid and of Nitrous Acid in the Rainfall at Melbourne, Australia. The author described the methods adopted and stated that the results of the daily determinations from Nov. 1st, 1912, to Feb. 28th, 1914, when correlated with the meteorological data for Melbourne and the isobaric charts for Australia, reveal the existence of a relation between weather conditions and the amounts of the nitrogen acids in the rainfall. The concentration of nitric acid reached a maximum in summer, a minimum in winter, and an intermediate position in autumn and spring. The concentration of nitrous acid reached a maximum in winter and a minimum in summer. Nine well-defined recurring types of rainstorms have been investigated, the amounts (pounds per 1000 acres) of oxidised nitrogen per day varying from 1.5 in the case of certain antarctic storms to 35.0 in the case of intense tropical storms.

DELAY IN NOTIFYING TUBERCULOSIS.—At Houghton-le-Spring (county Durham) police court recently Mr. W. H. Condell was summoned under the Public Health (Tuberculosis) Regulations, 1912, for failing to notify a case of tuberculosis within 48 hours. Mr. Condell had attended the case on Dec. 14th, 1914, but notification of it had not been received by the district medical officer of health, Mr. D. S. Park, until Jan. 4th. Upon this Mr. Park had written to the defendant asking for an explanation but had received no reply, nor had the clerk to the district council who wrote subsequently. The defendant, who acted as assistant to two medical practitioners practising in partnership, stated as an explanation of the delay that he had made out the notification and addressed it, but that it had been mislaid and not found and posted until the beginning of January. In this he was corroborated by a dispenser. The defendant also stated that he had been unable to read the letter of the medical officer of health, and that he did not see why the clerk to the council should have written to him as he believed that the notification had been duly sent. The magistrates had been informed by Mr. Park that due consideration would have been given by the council to any explanation before taking proceedings, and no doubt had this omission to reply in their minds in imposing a fine of £3 and costs, including £2 2s. for the fee of the prosecuting solicitor, with the alternative of a month's imprisonment in default of distress.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 27, 1915.

Radium Therapeutics.

THE annual report of the Radium Institute dealing with the work done during the year 1914 is before us, having been issued with commendable promptness. It differs from that of the previous year in being more comprehensive, and details of technique and of actual cases are given to an extent not attempted before. From the abstract which we publish in this issue it will be seen that the report does not vary much from the reports issued in former years in its main features, but we have now the records of many cases in which radium emanation has been largely employed, and also records of a few instances of rare conditions which have proved amenable to radium therapy. The total number of cases is somewhat smaller—841 as against 972 in 1913. Ninety-five were examined but not treated, and of the remaining 746 cases 429 were malignant, including 73 of rodent ulcer. As in the previous report none are stated to be cured, but we have the same number as in the last report, viz. 50, given among apparent cures. Owing to the smaller total number in the present report we obtain a slightly better percentage among the apparently cured. On the other hand, in the percentage of those described as "improved" there is a decline to a corresponding degree. From this we may say that as regards this treatment of malignant disease we are broadly in the same position as we were a year ago. While it would have been more satisfactory to be recording some definite advancement, there is no reason for disappointment. Real advancement in radium therapeutics must be slow; it is quite conceivable that taken in bulk the cases in 1914 were slightly less favourable than in 1913, though in both years the patients were as a whole in an advanced state of disease. And speaking generally, it must be remembered that in radium therapeutics we are concerned with some of the most difficult pathological problems that have ever confronted the medical profession. The work of the Radium Institute has proved valuable as well as suggestive, and its utility will surely develop with time and experience.

Carcinomata affecting moist mucous membranes still continue to be very refractory in their response to radium, but we note that a new method of attack is being tried which promises well. It consists in burying within the nodule a very small but intensely powerful emanation tube. The reaction is severe, and in some of the cases the nodule ceases to grow and becomes replaced by fibrous tissue. Unfortunately, neither here nor in other situations does the application have any

influence on metastasis, and it is this unfortunate property of malignant growths that marks the most serious limitation to radium therapy, since a large proportion of these inoperable cases must be near to the stage of dissemination—some indeed have actually entered upon it. Excellent results continue to attend the radium treatment of carcinoma of the uterus, much more so than when the rectum is attacked; and especially is this the case when the site of the growth approaches the sphincters. In a few instances carcinoma of the prostate has been treated with results that are very hopeful. With regard to the sarcomata, it is pleasing to note that the outlook is distinctly more encouraging; as a rule, if they are submitted to early treatment these growths do very well under radium treatment. Those situated in the tonsil and post-nasal space seem to be particularly benefited, but in all cases the treatment must be vigorous. Non-malignant growths react so favourably that an almost unbroken series of successes is presented in the report, and the same may be said of many skin diseases which resist most ordinary methods of treatment; this is particularly noticeable where much itching is present, such as in lichenification of the skin and in pruritus. It is of interest to record that considerable success has attended the treatment of angio-neurotic oedema—a comparatively rare disease that has resisted other methods of therapy. A striking feature of the work of the past year has been a large increase in the number of cases of arthritis deformans treated by the daily administration of a definite quantity of radium emanation solution, with results that are quite remarkable. Early cases in subjects under 40 years of age respond most favourably, especially where the changes are peri-articular. Increased mobility, diminished pain and grating, restored muscular tone, and improved general health have been noted in a large proportion of cases. Considering what an obstinate, painful, and crippling disease this is, these results constitute no mean achievement; they may bring relief to thousands of sufferers. It will give some idea of the extent of the work at the Radium Institute when it is stated that the number of treatments given last year was no less than 6453, and it is gratifying to record that more than half (3972) were given free of charge to necessitous patients.

The report of the work done in the radium department of the Edinburgh Royal Infirmary during the same period has also just been issued, and we publish a summary of it this week. While naturally the total number of cases treated is very much smaller, the results, generally speaking, are the same as in the case of the Radium Institute, at least so far as treatment by means of tubes and plates containing radium is concerned. The use of emanation tubes and solution apparently has not yet been attempted in Edinburgh, if we may so judge from the absence of any reference to this in the report. Altogether we are of the opinion that the result of the year's work in radium therapy discharged by these two institutions is very satisfactory, and that great credit

is due to Mr. HAYWARD PINCH and Dr. DAWSON TURNER for the sound and scientific manner in which this important work has been carried out in their respective jurisdictions. From time to time the scarcity and price of radium have given rise to considerable comment, and probably these factors are responsible for many individual sufferers being denied the benefits they might have secured. We are not sure that this is altogether to be regretted in the case of a powerful agent such as radium. The requisite quantities for serious work and investigation could be obtained only by means of co-ordinated wealth, and this has ensured the work being entrusted to experts possessing the necessary qualifications, whose co-ordinated efforts are likely to advance our knowledge far more rapidly than would the unregulated efforts of the profession at large; also the possibility of harmful effects arising from its use in unsuitable cases is reduced to the minimum. Should the time come when a plentiful and cheap supply of radium is available we shall have every reason to be thankful for the admirable investigations made under present conditions.

In conclusion, while we are glad to pay tribute to the excellent work and progress made in radium therapy, we should not forget that in the X rays we have an agent that has done us good service in the past but whose possibilities are by no means exhausted. The exhibition of cases of uterine cancer, treated by radium, which took place at the Royal Academy of Medicine in Ireland at the last meeting of the Section of Medicine, led to a debate of some significance in this direction. The question of immunity to malignant disease following upon the use of radium emanation, here touched upon, is one that fully deserves further attention. Again, some remarkable results have been obtained through the use of massive doses, heavily screened, and applied to deeply seated malignant growths. It is not unlikely that the therapeutic applications of the X rays and radium will each become relegated to certain classes of work and much of the present overlapping avoided. Individual idiosyncrasies will have to be met, but in the main the two agencies should be considered as complementary rather than antagonistic. From all of which it will be seen that much earnest work remains to be done.

The War and Industrial Pharmacology.

IN more directions than one the war is opening up joints in the harness of the nations. One of the difficulties that has made itself felt in nearly all countries except Germany is a shortage in the increasingly important class of synthetic products used in medicine. This is one of the directions in which it has been urged that we should endeavour to capture the enemy's trade, for we have unwisely allowed Germany to establish a practical monopoly of these drugs. This matter is also forcing itself

upon the attention of our French colleagues, as is evidenced by an extremely interesting address by Dr. EDOUARD BARDET, of Paris, the new President of the Société de Thérapeutique,¹ on Jan. 13th.

Dr. BARDET suggests that the reason why this industry has been captured by Germany is that favourable legislation has been enacted and invaluable assistance rendered by the universities in the solution of industrial problems. With this backing German capitalists have not hesitated to embark the all-essential capital in the development of this industry. Dr. BARDET goes on to point out that in Germany men of science of the highest calibre have not considered it beneath their dignity to devote their energies to the work. In France, on the other hand, the opposite has been the case, and French men of science have shown a systematic indifference to industrial pursuits. Dr. BARDET also insists that the French pharmacy law, which was framed practically before any chemical industry existed, and forbids the manufacture of pharmaceutical products except by pharmacists or under their control, has been a powerfully deterrent factor. In the circumstances, he says, capitalists not unnaturally decline to sink large sums in an industry in which they are personally debarred from controlling the expenditure of their money. In his opinion it is largely due to these causes that the manufacturing side of synthetic chemistry has been neglected in France, and he gives one instance which serves to show that while industrial enterprise has been kept in check initiative has not been wanting. The case he cites is that of the drug which is so well known under the German trade name of urotropin. In 1894 Dr. BARDET, in conjunction with TRILLAT, first called the attention of the profession to its therapeutic uses and suggested for it the trade name of formine. This name was public property, and any chemist or pharmacist was free to manufacture the drug and put it on the market in that name. It was not, however, until the German house of Schering, as a result of Dr. BARDET'S labours, produced and popularised the drug under the name of urotropine that the French medical profession paid attention to it, with the result that France for 20 years has paid to Germany an annual tribute of hundreds of thousands of francs for an ordinary drug of French origin which could have been sold at much lower prices when freely manufactured under its chemical name or that of formine.

That someone or something is to blame for this state of affairs is obvious, but whether Dr. BARDET places the blame in the right quarters is at least open to question. In England a good many people have selected the cost of alcohol as the scapegoat, but Dr. BARDET'S scapegoat is apparently the archaic pharmacy laws. Again and again he points to the restrictions imposed by the pharmacy laws as being responsible for the neglect of the manufacture of

¹ Bulletins et Mémoires de la Société de Thérapeutique.

synthetic drugs. But is he right? It is true that the French law which regulates the practice of pharmacy is in urgent need of amendment, but as no doubt Dr. BARDET knows, the administration of the law in France is tempered with a good deal of common sense, and a good many things are done openly, and apparently with the full sanction of the Government, which if tested would be found to be technically illegal; in fact, he instances one such case himself—namely, the manufacture of bromides, which is carried on in France by makers who are not pharmacists, because bromides are used in photographic processes. Those who have had personal experience of the working of the French pharmacy law, and of the indulgent attitude of those who administer it, can hardly have failed to form the opinion that if any of its provisions really stood in the way of real progress their application would be rendered obsolete. What seems to have been overlooked is that the manufacture of coal tar colours, of which industry the manufacture of synthetic drugs is merely an offshoot, has been neglected in France almost as much as in Great Britain. Yet there is nothing in the French pharmacy law to prevent people who are not pharmacists from manufacturing dyestuffs. While one cannot but think that Dr. BARDET has found the wrong scapegoat, it can readily be acknowledged that he has done a useful service in drawing attention to the defects of the pharmacy law, for it would be a very serious matter if the progress of this industry should be impeded even slightly by restrictive legislation of an unnecessary kind. Dr. BARDET also blames the comparative indifference on the part of the medical profession in France as being partly responsible for the neglect of the synthetic drug industry; but here, again, it is doubtful whether his view is altogether a just one. It must be remembered that synthetic drugs were not made to supply a demand, but that the demand was created to meet the supply. The real causes of the neglect of the fine chemical industry in France have been much the same as in this country—namely, the failure of our manufacturers to make use of the services of technical chemists and the failure of the Government to subsidise chemical research, and to encourage manufacturers to apply the discoveries of the laboratory to industrial problems. Happily there are distinct signs that in this country at any rate our manufacturers now recognise their mistakes, and what is equally important, we have the assurance that the Government is willing to grant a very substantial sum for the purpose of experimental work in connexion with the production of coal-tar colours. And as the chemistry of these colours is so intimately related to that of synthetic drugs it seems clear that the production of these drugs will progress with the progress of the dyestuffs industry. No doubt the French Government is equally well aware of the needs of the industry and will take the steps which seem to be indicated.

Annotations.

"Ne quid nimis."

REGULATIONS PROHIBITING THE SALE OF DANGEROUS SHELL-FISH.

THE Local Government Board has just issued an Order, under the Public Health (Regulations as to Food) Act, 1907, to take effect on March 1st, to enable the local authority of any port or sanitary district which comprises tidal waters to prohibit the sale of shell-fish taken from any public or private laying, when evidence is forthcoming that the consumption of the shell-fish is likely to cause danger to public health. The prohibition is to be made on the advice of the local medical officer of health, and in all cases the owner or fishmonger is to be given the opportunity of relaying the shell-fish, for purposes of purification, for such periods as the medical officer of health advises to be necessary. This period, in the case of contamination with sewage organisms, will usually be at least a fortnight. The action may be taken on local evidence alone or as the result of representations to the local authority by some other authority in whose district shell-fish from the suspected laying are sold. Medical officers of health may in some cases find it difficult to determine what degree of risk of possible sewage contamination will justify their application of the new powers, but fortunately the main facts are well known and the principles of action are now generally agreed upon. The opportunities of pollution of oyster layings and of beds of cockles, mussels, and other shell-fish all round the English coast were very fully described in the late Dr. H. T. Bulstrode's well-known reports of 1894 and 1911 to the Local Government Board, while the whole question of polluted shell-fish was thoroughly investigated by the Royal Commission on Sewage Disposal, and discussed in its fourth report. In the great majority of cases in which outbreaks of disease have been attributed to shell-fish, the foreshores, layings, or ponds have been so situated that opportunities of pollution by sewage have been obvious and indisputable on physical examination alone, bacteriological tests of the water or the shell-fish being almost unnecessary for proof of the occurrence of such opportunities. The efforts which have been made by oyster merchants, with the powerful aid of the Fishmongers' Company, to secure the general wholesomeness of oysters in this country have largely depended for their success on the elimination of oysters from all layings where such obvious pollution has been liable to arise, and it may be hoped that the new regulations will cause a corresponding degree of precaution to be taken in respect of sewage-polluted cockles and mussels, which in recent years have been much more frequently accused of producing enteric fever than have oysters. In a circular to the local authorities concerned the Local Government Board indicates that it has not yet been possible to alter the law in regard to the supervision of the purity of rivers and estuaries in the way recommended by the Royal Commission, and that the new regulations, which have to be enforced by existing local authorities, are to be considered as an alternative adopted to meet present needs as far as possible under existing powers. At a time when every precaution should be taken to minimise all sources of enteric

fever infection this action of the department will be welcomed. The regulations provide for appeal to the Local Government Board, and thus should secure that in any case of difficulty the question of prohibiting the sale of shell-fish from suspected layings will receive careful expert examination.

WAR AND EUGENICS.

THE relation of war to eugenics is quite naturally forcing itself at present very strongly upon the attention of the eugenicists. In the United States thoughts were turned in that direction the moment the magnitude of the struggle was envisaged. Professor Starr Jordan, of Stanford University, California, has delivered a notable address upon Eugenics and War, and the same subject occupied the attention of Mr. Theodore Chambers in a lecture delivered last October before the Eugenics Education Society.¹ Now the second Galton lecture, delivered before the same society in memory of the late Sir Francis Galton on his birthday, Feb. 16th, by Mr. J. Arthur Thomson, Regius professor of natural history in the University of Aberdeen, has taken up the same subject, and almost necessarily follows much the same lines as those of Mr. Chambers. Professor Thomson emphasised the fact that those who see in warfare a eugenic influence along the line of the struggle for existence lose sight of the difference between the effect of tribal warfare and modern wars, in that while the former eliminated the weak and cowardly the latter takes special toll of the virile and courageous. The struggle for existence is often misunderstood, moreover, through its limitation to the one aspect of sharpening tooth and claw, whereas other modes of response to the limitations and difficulties opposed by environment, such as the fostering of parental care, the subordination of self-preservation to the interests of the race, and (especially among the finer forms of life) a movement towards coördination rather than competition as favouring survival and success, are overlooked. In this respect war appears biologically rather as a reversion to the most primitive and crude form of the struggle, and involves a serious danger of descent in the scale of evolution. Professor Thomson, with a view to counteracting this, suggests that the tendency to economise in the "nobler luxuries" should be resisted, as crippling the least readily replaceable members of the community. It is interesting to recall here that the distress among professional classes caused by the war, which will inevitably be heavier and will endure longer after peace is declared than with most other sections of the community, has led to the formation of a Professional Classes War Relief Council (13 and 14, Prince's-gate, S.W.), which aims to organise assistance by the coöperation of professional institutions and societies organising relief, not in the way of charity but by giving centralised forms of aid in such matters as education, training, emigration, maternity, and temporary employment, and generally by rendering assistance to the dependents of professional men who have enlisted or have been called on to serve in their Territorial units. In the matter of education especially, measures will be taken to enable such dependent children to go to or continue at school when their education

would otherwise be interrupted. A great point in favour of this scheme is the fact that its organisation need not be transitory and limited to the duration of the war, for many of the methods indicated in the council's programme will possess permanent utility. The personnel of the council will command general confidence, which will be heightened for the medical profession by the presence thereon of well-known medical men. Professor Thomson in his address further recommends the encouragement of marriage among soldiers, where adequate provision for widows and dependents is forthcoming, and urges a jealous scrutiny of the various well-meant but hasty proposals for relieving war strain, such, for instance, as the suggested employment of children in agricultural labour. It must be remembered, however, that all available men may be needed for service, while the stoppage of agricultural pursuits would be as disastrous as a defeat. The outdoor healthy life of agricultural work for children can scarcely be condemned as that in shops and factories might justly be. Compulsory military training Professor Thomson regards as a lesser evil than a large standing army, but fears its possible effect in Prussianising the people. Above all he urges strenuous resistance against any lessening of eugenic endeavour in consequence of the war.

MEDICAL PRETENSIONS IN AMATEURS.

WE have before us two curious leaflets. One is headed "The Eustace Miles System, Revised List of Fees (payable in advance or at the time of interview), for the Various Health, Diet, Exercise, and Mind-training Courses, Threefold, Twofold, and Blood Examinations, Interviews, &c., &c."; the other is entitled "In Time of War," and in it "The Health and Medical Reform League" advertises an At Home to be held at the Eustace Miles Restaurant, when short addresses, music, and tea are promised to the company. Both of these documents appear to us to have the same objectionable feature in that they endeavour to attract by the pretension of qualification to advise upon matters which in general experience are best treated by those having medical knowledge. We have no criticism to offer of the fitness of Mr. Eustace Miles to deal with all things strictly relating to the ball games of which he is a proficient and well-known exponent, and his personal knowledge of how to train for these games has its value; but we very strongly deprecate the introduction of a marked medical flavour into a commercial advertisement issued by any person not having professional training. Of course, if Mr. Miles did possess medical qualifications he would be debarred from issuing any advertisement at all, whether in the form of a list of fees or otherwise. We quote from Mr. Miles's tariff sufficient to indicate the kind of matter which we consider objectionable, not only as a subject of advertisement, but as an invitation to persons who may be in need of medical treatment, or who fancy themselves so, to seek the advice of the unqualified. There are more than 20 items in the menu which he offers, and if many are harmless the following cannot be without risk.

A. For the First Threefold Examination and Report, with full Health Course (Diet, Exercises, Mental Helps, Water-treatments, &c.), and a Personal Interview with Mr. Eustace Miles lasting for about 30 minutes: Five Guineas.

C2. For each Blood Examination and Report, with General Advice (see G.) and a Personal Interview lasting for about 30 minutes: Three Guineas.

¹ Eugenics and War, by Theodore Chambers, *Eugenics Review*, January, 1915.

D. For each examination of only the Urine and Excreta (for which Mr. Collings sends special postal tins, &c., with full instructions) and report and general advice (see G). Two guineas.

We gather under "G" that general advice is given by correspondence, and includes considerable but not full advice, and under "H" that for a guinea there can be had a personal interview lasting 30 minutes, to include "as much practical advice as can be given in the time." At a special fee blood examinations may be made at "patients' own houses." Under the head of cookery there are offered lessons and "remedial recipes," presumably not administered personally by Mr. Miles, for "the cure of gouty and rheumatic disorders, liver and kidney troubles, anaemia, &c." "Single lesson (4 or 5 recipes for one complaint) 5s." The food provided by Mr. Miles at his restaurant may be wholesome, and some palates may find it agreeable, but such catering does not constitute a scientific training. Many people eat more than is good for them and consume food which they had much better avoid, but we must express without qualification the opinion that anyone whose state of health renders examination of his blood, urine, or faeces desirable had better place himself in the hands of a medical practitioner, and receive such advice as to diet as his case demands. If any of the articles of food thus recommended are to be obtained from the establishment which bears Mr. Miles's name, then, no doubt, it will be found an excellent place at which to purchase them. The second document does not in any way mention Mr. Miles, but is the advertisement of a meeting for the delivery of "Short Addresses on 'International Importance for Helping Soldiers and Others under Nerve Strain, by Modern Methods of Nursing and Diet.'" The speakers named are a Mr. Maitra, a Miss Beadon, and a Mr. T. Butt. The qualification of the last named alone is given. He is described as "late Private, Grenadier Guards," and may have had personal opportunities for the observation of nerve strain in soldiers. But the point is that no one without real knowledge of physiology and psychology can have anything to say upon the subject that is worth hearing, and this is not the right time to invite general audiences to listen to any teaching upon so critical a subject as nerve strain in soldiers, save from men and women of the highest equipment. Mr. Eustace Miles could, we think, put his restaurant to better uses.

ANTHROPOLOGY OF THE AFRICAN BANTUS.

Mr. G. D. Maynard and Dr. G. A. Turner¹ have utilised the opportunities afforded them by their connexion with the Witwatersrand Native Labour Association to collate a comparatively large number of anthropological records on Portuguese East African natives recruited for work on the gold, diamond, and coal mines of the Transvaal. The authors give a historical sketch of the various native races, divided into two main classes: (1) the subtropical or East Coast natives, from between the Zulu border and latitude 22° S., and (2) tropical natives, from between the Zambesi river and German East Africa. The first group contains the Shangaans, Mytopis, Inhambaans, and Maputos or Tongas; the second, the Agoni and

Agawa from the Pete district, the Quilimanes, Mozambiques, and Portuguese Nyassas. Accuracy of detail being out of the question, the authors have attempted merely to give the reader some idea of the nature of the material, and to demonstrate the futility of attempting to regard any tribe as a pure strain, even if only for a few generations; for tribal wars are frequent and the predominant tribe leaves its mark on the inferior race, since all marriageable females become the property of the dominant race. Other influencing factors in intermingling are the exchange of women among chiefs, the slave trade, and the Portuguese policy of bringing black soldiers from one colony to another and of deporting chiefs and their followers from one part to another. Examinations of the actual data obtained from post-mortem examinations of natives show very marked differences between the natives from tropical districts and those coming from south of lat. 22° S., and even on subdividing these groups differences are still discernible, though to a less extent. Descriptions and tables of the data obtained follow under the heads of stature, brain weight, skull thickness (in which connexion it is noticeable that no evidence is forthcoming to lend weight to the contention that the native skull is thicker than that of the European), cephalic and cranial indices, scalp measurements, heart, spleen, liver, and kidney weights, and intestinal measurements. Some excellent drawings by Miss O. M. Vieick depict the faces of various natives typical of their races, and illustrate the facial markings that form a noticeable feature among many Bantu tribes. Outside scientific work of this character by medical men is worthy of all commendation.

THE MEDICAL EDUCATION OF WOMEN.

ON Thursday in last week a meeting was held in Sunderland House, Curzon-street, London, the hostess, the Duchess of Marlborough, presiding, when the object was to promote the extension of the London (Royal Free Hospital) School of Medicine for Women. The Duchess of Marlborough in opening the proceedings dwelt upon the shortage of medical practitioners already felt in this country, a shortage which must inevitably increase as military exigencies make even greater demands upon a limited supply, and pointed out that the laments of medical women to a wider and more energetic public support were accentuated by the emergency. The view is one that we all support. Sir Donald MacAlister made a statement recently at a meeting of the Executive Committee of the General Medical Council to the effect that for the next few years from 200 to 300 fewer medical men will qualify as medical practitioners, and his statement was communicated to the War Office in order that senior medical students serving in the Army in different capacities might be released and enabled to continue their studies. In this way the more immediate shortage may be alleviated, but the position in the years to follow must remain unaltered. The medical curriculum occupies the student on an average at least six years, so that no reinforcement in our medical schools will be reflected upon the Medical Register until 1920 or so. The shortage would have been inevitable in any case, and in face of contradiction we have frequently said so; the war bids fair to make it acute by increasing the demand and diminishing the supply. This affords a great opportunity to medical women, and there is no

¹ Anthropological Notes on Bantu Natives from Portuguese East Africa. By G. D. Maynard, F.R.C.S. Edin., and G. A. Turner, M.B., B.Ch. Aberd., D.P.H. Johannesburg: The South African Institute for Medical Research. 1914. Pp. 36 + 14 plates. Price 2s. 6d.

doubt of their intention and ability to use it. For with them the numbers of recruits are increasing instead of decreasing, while the openings for practice have been vastly enlarged, every bit as much in acknowledgment of the sterling services rendered by medical women as because the exigencies of the times have made new avenues free to them. Medical women are now serving the public in hospitals, in private practice, in pathological laboratories, as medical missionaries, in Government departments, and in municipal bureaux, and in all their various capacities are justifying their positions. And in the war they have made their mark. The Director-General of the Army Medical Service at the Sunderland House meeting said that his opinion of the work done by the medical women on the staffs of their hospitals at Paris and Boulogne had been so favourable that he had specially given certain of them larger responsibilities; the impressions of Sir Alfred Keogh have received confirmation on all hands, and his expressed intention of making greater use of medical women in connexion with the war has been generally approved. In asking the public, therefore, to support the extension of the London School of Medicine for Women the promoters of the movement are on the surest of ground—the services of the medical women are required, and they have proved that these services are of great value to the community. The medical education of women largely centres round the London School of Medicine for Women, where more than half the women practitioners on the Register received their education, and no more worthy object of public support, both on general and scientific grounds, has ever been brought forward than this school. £25,000 is asked for, but much more might well be given.

THE Friday evening discourse on March 11th at the Royal Institution will be given by Sir Rickman J. Godlee on "Back to Lister."

Sir Richard Douglas Powell, Bart., will deliver an emeritus lecture, entitled "A Case of Congenital Heart Disease," on Friday, March 5th, at 3 P.M., in the new theatre of the Middlesex Hospital Medical School.

WE regret to announce the death of Dr. Edward Cox Seaton, which occurred on Saturday, Feb. 20th. Dr. Seaton, who was consulting medical officer of health to the Surrey county council, had been throughout a long professional life a prominent and active sanitarian.

A CLEARING HOSPITAL FOR WAR REFUGEES.—At the request of the Local Government Board a dispensary and small hospital for war refugees has been opened in Sheffield-street, Kingsway, W.C., under the control of the Metropolitan Asylums Board. A large building, admirably suited for the purpose, has been fitted up with all the necessary requirements for a dispensary, and hospital accommodation has been provided for 21 beds, with possibilities of extension to 24, while in addition six cubicles can be used as observation or isolation wards. On the ground floor are a large waiting-room, a dressing-room and dispensary, and offices for the medical and nursing staff. Should occasion arise the accommodation can be considerably extended. The institution is intended to act as a clearing house, where cases may be kept under observation and treated prior to being drafted to other institutions. The medical officer who has charge of the hospital and dispensary, Dr. D. F. Riddell, is being assisted by Dr. G. DeLaey, a Belgian medical man. Special cases receive the attention of the specialists attached to the Metropolitan Asylums Board.

CEREBRO-SPINAL FEVER: A MEMORANDUM FROM THE LOCAL GOVERNMENT BOARD.

OCCURRENCE OF THE DISEASE.

A MEMORANDUM of the first importance upon the incidence of cerebro-spinal fever, its clinical features, and the administrative action that should be taken against its spread, was issued on Wednesday morning by the Local Government Board to the medical officers of health and sanitary officers of this country. The Memorandum has been prepared by Dr. Arthur Newsholme, medical officer of the Board, in view of the recent occurrence of the disease in various districts, and is a revision of the Memorandum first issued by the Board in 1905 and reissued in 1910. After a brief résumé of the outbreaks of the disease at earlier dates, the Memorandum continues:—

Incidence of the disease.—In this country seasonal incidence of the disease has not been marked, but there has been some increased prevalence of the disease in winter and still more in the spring. This has been much more marked in Continental and American experience. Amongst the civil population in this country and in such epidemics in other countries the majority of the cases have occurred in children. During 1912 there were notified in England and Wales 272 cases,¹ during 1913, 304 cases, and during 1914, 310 cases of this disease. It is possible that some of these cases were meningitis due to other micro-organisms than the meningococcus, and that some cases regarded as cerebro-spinal fever were poliomyelitis. On the other hand, it is not unlikely, in view of the difficulty of diagnosing sporadic cases, that unrecognised cases of cerebro-spinal fever may have occurred.

Clinical features of the disease.—The late Mr. Netten Radcliffe described cerebro-spinal fever as "an acute, epidemic disease, characterised by profound disturbance of the central nervous system, indicated at the onset chiefly by shivering, intense headache or vertigo, or both, and persistent vomiting; subsequently by delirium, often violent, alternating with somnolence or a state of apathy or stupor, an acutely painful condition with spasm—sometimes tetanoid—of certain groups of muscles, especially the posterior muscles of the neck, occasioning retraction of the head and an increased sensitiveness of the surface of the body. Throughout the disease there is marked depression of the vital powers, not unfrequently collapse, and in its course an eruption of vesicles, petechial or purpuric spots, or mottling of the skin is apt to occur."² If the disease tend to recovery, the symptoms gradually subside without any critical phenomena, and convalescence is protracted; if to a fatal termination, death is almost invariably preceded by coma. After death the enveloping membranes of the brain and spinal cord are found in a morbid state, of which the most notable signs are engorgement of the blood-vessels, usually excessive, and an effusion of sero-purulent matter into the meshes of the pia mater and beneath the arachnoid."³ Local prevalence of illness distinguished by the foregoing features would, no doubt, attract attention and would, it may be presumed, lead to early recognition of its true nature. But while these features are characteristic of typically severe cerebro-spinal fever, experience shows us that it may and does appear in milder or in anomalous forms which render identification difficult, and which lead to its being mistaken for other ailments of more common occurrence in this country. Illustration of this is afforded by certain localised outbreaks of cerebro-spinal fever in the eastern counties in 1890, where this disease was generally mistaken for sunstroke or for enteric fever, or was looked

¹ The disease was made notifiable for the entire country from Sept. 1st 1912. Prior to this it had been notified in a number of sanitary areas.

² In a very considerable number of instances, however, no eruption of any kind is present.

³ To the clinical manifestations of the disease indicated in the above description may be added the presence of Kernig's sign and of tache cérébrale.

upon as a new form of illness; by the prevalence of what would seem to have been cerebro-spinal fever in Northamptonshire in 1890-91, where the malady was for the most part diagnosed as pneumonia or as sore throat; and by the occurrence of cerebro-spinal fever in Irthlingborough in 1905, where many of the persons attacked were regarded as suffering from influenza. In these anomalous forms of cerebro-spinal fever, many or even most of the symptoms associated with the recognised type of the disease may be absent, while in mild cases they may be so slight or of such brief duration as to escape notice. It is necessary to be on the outlook for such cases when cerebro-spinal fever occurs in a locality or when illness not clearly referable to definable cause prevails in a particular neighbourhood. Cerebro-spinal fever is apt also to escape recognition when it is of the "fulminant" variety, in which death ensues rapidly. In these instances the disease has been mistaken for typhus fever, idiopathic tetanus, malignant measles, or other diseases.

Mode of spread of the disease.—Cerebro-spinal fever has a much more restricted direct infectivity than characterises a disease like small-pox, which attacks the majority of persons exposed to infection who are unprotected by vaccination or previous small-pox. In most outbreaks of cerebro-spinal fever only one member of the invaded family develops definite symptoms of meningeal disease, though exceptions to this statement are not uncommon. The meningococcus is found in the mucous secretion of the nasopharynx in a considerable proportion of those suffering from the disease, especially in its earlier stages, and also in some apparently healthy persons who have been in contact with cases of the disease.

The Memorandum continues by pointing to the probability of carriers of infection existing who are themselves unaffected, and while admitting that modes of infection as yet unrecognised possibly exist, concludes that cerebro-spinal fever generally spreads in association with overcrowding, lack of cleanliness and ventilation, inclement weather, and perhaps excessive fatigue.

ADMINISTRATIVE ACTION.

The second part of the Memorandum deals with administrative action, and commences by pointing to the necessity of careful diagnosis between cerebro-spinal fever and poliomyelitis, both of which diseases are compulsorily notifiable. The advisability also is mentioned of making inquiry into the circumstances of deaths recorded as tuberculous meningitis, meningitis, or convulsions (with no further definition) when these deaths occur in districts where cerebro-spinal fever is known to be present, while medical officers of health are recommended also to invite from practitioners details as to anomalous cases of sickness which might be cerebro-spinal fever.

The Memorandum then points out the necessity of employing bacteriological aids to diagnosis.

In view of the difficulty of diagnosis of early cases of the disease the Board are prepared to undertake the examination in their pathological laboratory of cerebro-spinal fluid sent to them packed in accordance with the regulations of the Post Office. The parcel should be addressed to the Medical Officer, Local Government Board, Whitehall, and should be accompanied by a short statement of the circumstances of the case. The hour at which the specimen was collected should be stated, and delay in transmitting the material should be avoided. The patient is also to be strictly isolated, carefully nursed, and all precautions are to be observed as to disinfection, both during the patient's illness, and later when the sick-room is vacated.

The Memorandum continues:—

Investigation of sources of infection.—The possible occurrence of anomalous cases should be investigated. Special

attention should be directed to cases of sore-throat, headaches, pains in back and limbs, &c., suggesting "influenza." The important share borne by healthy "carriers" as agents of infection should be borne in mind. The bacteriological examination of swabs from persons likely from their history to have acted as "carriers" should be undertaken. The method of procedure is set out in the next paragraph.

Investigation of possibilities of continued infection.—The infectivity or otherwise of contacts can be determined by taking swabs from the upper part of the nasopharynx. Swabs from the fauces are of small value. It is important to avoid contamination of the swab by the bacteria of the mouth and fauces. This has been effected by using a swab mounted on a long rod, curved at its distal end, and protected by a metal cannula. The swab should not be extruded until the end of the cannula has passed behind the uvula, and should be withdrawn into the cannula immediately after careful contact has been made with the mucous membrane of the nasopharynx. As the meningococcus does not live long in the swab it is desirable that Petri dishes containing suitable media should be obtained direct from a laboratory and inoculated directly the swab has been taken. The first Petri dish may become overgrown with extraneous organisms, and it is therefore desirable to use two dishes, the second being inoculated from the first by means of a sterile glass rod or other sterile implement. The Petri dishes should be forwarded to the laboratory without delay. Whenever practicable swabbing should be done by or under the superintendence of the bacteriologist. Inability to secure a positive result from swabbing may be caused by unskilled swabbing or by failure in the subsequent procedure of inoculation of the medium in the Petri dish or by failure to incubate promptly at the appropriate temperature. Negative results obtained with swabs sent by post for transfer to culture media at a laboratory may be due to the death during transit of any meningococci present.

Precautionary measures as to contacts.—All persons who have been in attendance on, or otherwise in close personal association with, the patient should be regarded as possible carriers of infection. The duration of the infectivity of contacts is doubtful. It will be a useful rule to regard them as possibly infective for three weeks from the date of last association with a patient, but the partial restrictions to their intercourse, otherwise desirable, may be relaxed if swabs from the nasopharynx examined under the conditions set out in the foregoing paragraph fail, preferably on two occasions, to show the presence of the meningococcus. Contacts should be instructed and warned that they may be a source of danger, although remaining quite well themselves, and that for this reason they must abstain from intimate personal association with others. This rule should be especially followed by contacts who have catarrh. Contacts should also be advised that an open-air life diminishes the risk of infection both of themselves and of others. Isolation of such contacts in a hospital should not be attempted. Detection of the meningococcus in the nasopharynx of a contact is valuable evidence of his potential infectivity to others, while failure to find the micro-organism does not possess an equal negative value. Nasal sprays have been recommended for contacts, a disinfecting solution such as potassium permanganate, 1 in 1000, being used. If spraying is employed it should be carried out under medical supervision.

General preventive measures.—In the presence of cerebro-spinal fever the nearest approach to open-air life should be aimed at, especially for all contacts. In view of the known association of cerebro-spinal fever with overcrowding, insufficient ventilation, and uncleanness, the avoidance of these conditions becomes a matter of prime importance. This is especially true where large numbers of persons are aggregated under one roof.

A covering letter to Dr. Newsholme's Memorandum, signed by the Assistant Secretary of the Local Government Board, requests that medical officers of health will forward to the Board, addressed to the medical officer, a report on each case of cerebro-spinal fever notified in their districts, and a schedule is appended to the Memorandum indicating the form which the information should take.

REPORT OF THE RADIUM INSTITUTE FOR 1914.

Mr. Hayward Pinch's report for 1914¹ deals with the cases which have presented themselves at the Radium Institute from Jan. 1st to Dec. 31st inclusive, and the cases treated were in no instance selected. The only cases refused have been those in which the patients were practically moribund, or where the disease was of a kind for which radium therapy was manifestly unsuitable. The report is of a very comprehensive character, containing details of technique and actual cases under each heading. As a copy will be sent on application to every practitioner who desires it, we abstract only such portions as will give a general idea of the results attained during the year's work.

Carcinoma (Squamous-celled (Epitheliomata)).

Epitheliomata of the face, trunk, or extremities, if flat and superficial and accompanied by little or no ulceration, give satisfactory results when treated with quarter or half strength apparatus, screened with 0.1 mm. of lead, the exposures varying from six to twelve hours' duration, spread over a period of three or four days. The retrogression of the growth is quickly brought about and little or no scarring results.

Ulcerating epitheliomata without much subjacent infiltration require treatment with quarter or half strength apparatus applied unscreened for a total exposure of two to six or eight hours, spread over a period of four or five days, and repeated after an interval of six weeks if necessary. A destructive reaction follows, but the result is usually quite good, and there is but little cicatricial contraction.

Ulcerated epitheliomata with great infiltration require prolonged treatment with heavily screened apparatus emitting only hard β and γ —the so-called "ultra-penetrating"—rays. Exposures of 30 to 60 hours given during one week, and repeated in five or six weeks' time are best; but if the growth shows signs of rapid extension the borders should be given a vigorous treatment with unscreened apparatus.

Epitheliomata of the buccal, lingual, and pharyngeal mucous membranes usually prove both refractory and disappointing in their response to radium, but a new method of treatment has been devised which in instances of cancer of the tongue has given somewhat encouraging results; it consists in the burying within the carcinomatous nodule of a very small but intensely powerful radium emanation tube possessing an initial activity equivalent to that of 80 to 100 mg. of radium bromide, enveloped in a screen of 1 mm. of silver or 0.3 mm. of platinum, and giving an exposure of 24 hours' duration. A fairly severe reaction follows, and in some cases the nodule ceases to grow and becomes replaced by dense fibrous tissue. Unfortunately, however, the treatment appears to have but little effect in arresting the dissemination of the disease, which sooner or later affects the neighbouring lymphatic glands or recurs close to the original lesion. The rate of growth of the infected glands can often be retarded by the prolonged and persistent use of the "ultra-penetrating" rays. If the dose given be a large one, the glands sometimes break down and discharge a milky-white fluid through a small sinus, and it is remarkable that ulceration of glands thus treated rarely occurs. In some of the more favourable cases of stricture of the oesophagus distinct, though temporary, benefit has resulted, and that this effect is not merely mechanical, due to the dilatation of the stricture by the apparatus, is evidenced by the fact that the improvement in the power of swallowing has persisted for six or even nine months after the termination of the treatment.

Detailed notes of four cases are given, the result in each being remarkably successful in view of the gravity of the condition.

¹ A Report of the Work carried out at the Radium Institute from Jan. 1st, 1914, to Dec. 31st, 1914, by A. E. Hayward Pinch, F.R.C.S., Medical Superintendent. (Published with the authority of the Committee.)

Carcinoma of the Uterus.

Uterine cancer continues to yield most gratifying results, and the effects of radium treatment in inoperable cases are far in advance of those obtained by any other known medical or surgical methods. The local manifestations of the disease are benefited in the most striking fashion, and the complete disappearance of fungating growth, arrest of hæmorrhage and discharge, healing of ulceration, and relief from pain are phenomena of frequent occurrence. In favourable cases, moreover, the treatment appears to exert a distinctly retarding influence on the dissemination of deposits, and thus to arrest the progress of the disease. It is not possible, however, to speak of "cure" even in these latter instances.

Carcinoma of the Bladder.

Six cases of this disease have been treated, and in two instances the results have been most gratifying. The hæmaturia, cystitis, and all subjective symptoms have disappeared, and cystoscopic examination has shown that the size of the growth has been greatly lessened, and any ulcerated surface has become covered with healthy epithelium.

Carcinoma of the Breast.

The number of patients with this disease applying for treatment far exceeds that of any other malignant condition. The policy of declining to treat operable cases is still rigidly adhered to, unless the patients have absolutely refused to submit to operation, and radium is used as a last resource. The progress of inoperable, slow-growing cases of the atrophic type is usually much retarded by the use of radium, especially when the metastases are confined to the skin, axillary, and supraclavicular lymphatics, and do not affect the lungs or abdominal viscera. Very small isolated cutaneous nodules on the chest wall, if few in number, may be effectively treated by unscreened exposures of one or one and a half hours' duration with a half-strength radium plate. If very numerous and closely set prolonged exposures of 30 to 40 hours' duration to heavily screened rays are preferable, and this method of treatment should also be resorted to for the primary growth, infected glands, or ulcerated surfaces if such exist. Superficial ulcerations unaccompanied by much subjacent induration are peculiarly susceptible to the action of radium and complete healing of these lesions is frequently observed. Little or no effect appears to be exerted in the prevention of metastatic deposits, though the treatment does not, at any rate, hasten their dissemination. Some cases in which pleurisy or ascites, dependent upon carcinomatous invasion of the pleura or peritoneum, has been present, have shown remarkable improvement, and the application of powerful apparatus screened with 2 mm. of lead over the affected pleura or peritoneum, after a preliminary paracentesis, has effectually prevented the further formation of effusion.

A few patients have been under treatment at intervals of three or four months since the opening of the institute in August, 1911, and it has been observed that a stage in their treatment is reached sooner or later at which the response to radium fails and the benefit derived becomes negligible. In rapidly growing carcinoma of the medullary type radium can do but very little except relieve pain, even though enormous doses be employed.

Carcinoma of the Rectum.

The adoption of radium therapy in inoperable cases of this disease is usually justified by the results obtained, though the amount of benefit is rarely so marked or so great as in carcinoma of the uterus. The disease displays much variation in its response to radium, and numerous factors have to be considered in prognosis. Speaking generally, the soft annular and vascular type of growth is much more favourably affected than the flat, hard, non-annular plaque with much subjacent induration. In the treatment of this latter class of growth the action of the gamma rays (which it is impossible to prevent) on the healthy rectal mucous membrane opposite the plaque produces a proctitis, which though generally transient sometimes proves both persistent and severe, and adds greatly to the patient's discomfort. In the treatment of the former type, if the radium tube be of proper dimensions and introduced accurately within the lumen of the growth, little or no healthy mucous membrane is affected by the gamma rays and no proctitis occurs. Growths situate in the upper half of the rectum appear to

be more amenable to treatment than those in the lower, though this may be due to the fact that tenesmus is always more constant and severe when the growth is near the sphincters.

Carcinoma of the Prostate.

The number of cases of this condition which have been treated up to the present is not very large, but benefit has been noted in all of them. Hæmaturia, when existent, has been either diminished or abolished, pain has been greatly lessened, and the size of the growth decreased.

Rodent Ulcer.

Of all forms of malignant disease this is the one which is most amenable to radium treatment. For the purpose of prognosis it appears justifiable to divide rodent ulcers into two definite clinical types: 1. The hypertrophic nodular type, with slight superficial ulceration of a scaly character. This class responds extremely well to radium and yields most satisfactory results. 2. The excavating type, with undermined and overhanging edges and a gelatinous base. This not infrequently proves very intractable, and repair is most difficult to effect. Increasing experience in the treatment of this condition has strongly confirmed the opinion expressed in a previous report, that the best results were obtained by exposures of one and a half to three hours' duration to full strength applicators unscreened. Although the reaction following upon this procedure is in some cases severe, and accompanied by a transient œdema of the surrounding tissues, the scars are invariably smooth, supple, and inconspicuous, and the tendency to recurrence is exceedingly slight. It is desirable that cases should not have been treated by other methods. Old-standing cases that have been treated by the X rays or CO₂ snow unsuccessfully are always more difficult to treat and the results less perfect.

Sarcomata.

Speaking in general terms, these growths, if taken in their early stages and before dissemination has occurred, do very well under radium treatment. The burying within the growth of tubes of radium salts or radium emanation should be resorted to whenever practicable, and the action of these tubes may be much helped by the external application of radium plates heavily screened. The screening of the tubes should not exceed 1 mm. of silver, as the employment of thick lead or platinum screens is often followed by necrotic changes in the cells in their immediate neighbourhood, and a sinus forms and remains open for a very long time. It is essential to give as vigorous a treatment as possible, as the great vascularity of these growths, and their rapid and wide dissemination by the blood stream, are factors which militate very strongly against the chances of success. The best results are obtained in sarcomata of the tonsil and post-nasal space, and the effect in many such cases is amazing, the growths completely disappearing within six weeks of the treatment. Lymphosarcomata also give excellent results.

Lymphadenoma.

The most striking feature in the treatment of this disease with radium is the extreme rapidity with which the size of the affected glands is diminished, the effect being often clearly perceptible to the patients themselves within a week of the first exposure. To obtain this result, the employment of numerous large and powerful applicators, heavily screened, is necessary, and this heavy dosage is almost always followed by severe systemic disturbance, with high temperature and general malaise. After the reaction has subsided considerable improvement is generally apparent, though in the majority of cases recrudescence occurs. The time at which this takes place, however, varies within very wide limits, and instances have been noted in which the disease has remained quiescent for more than a year. The best results are obtained when the condition is confined to the lymphatic glands—the spleen not being affected.

Splenic Leukæmia.

A case of splenic leukæmia has been under treatment, which began in December, 1913, using flat applicators containing in all 150 mg. of radium, screened with 2 mm. of lead, over the whole splenic area. She was reported quite well in December, 1914.

Adenoma of the Thyroid

A few cases of this condition have been treated during the past 12 months, the patients being unwilling to submit to

operation. In all cases some benefit resulted, and in two the improvement was very marked, the swelling shrinking to less than half size. The treatment has been the same in all instances, powerful flat applicators screened with 2 mm. or 1.5 mm. of lead being applied to the surface of the growth in such a manner as to procure an effective "cross-fire" irradiation. A series of exposures on five successive days, amounting in all to 30 hours, has been given, repeated if necessary at intervals of six weeks or two months.

Fibroid Disease of the Uterus.

Radium exerts a most beneficial action upon the distressing symptoms of menorrhagia and metrorrhagia, which are the almost invariable concomitants of this condition, and occasionally produces considerable diminution in the size of the uterus. As the cervical canal is rarely sufficiently patulous to admit a screened radium tube without previous dilatation, and patients are often averse from this, the treatment may be carried out by the introduction of a tube containing 100 mg. of radium, screened with 2 mm. of lead, into the posterior fornix, and the application of a plate of from 80 to 100 mg. similarly screened over the fundus uteri. The total exposure should be between 30 and 60 hours, spread over from 5 to 10 days, and the series should be repeated after six or eight weeks. The first effect noted is the checking of the metrorrhagia, and this is followed by a progressive decrease of the menorrhagia until the flow becomes normal, or sometimes ceases altogether. If any leucorrhœa exist this, too, is much diminished in amount, and not infrequently completely disappears.

Cases of *obstinate leucorrhœa* and *vaginal polypi* have been treated with complete success.

Nævi.

Flat Superficial Nævi, Capillary Nævi, "Port Wine Stains."—Before expressing an opinion as to the possibility of radium treatment effecting an improvement in any particular instance, it is advisable to subject the lesion to diascopy. If blanching is readily effected by gentle pressure the result of the treatment will probably be satisfactory; but if it be found impossible to produce blanching except by great pressure it is unlikely that radium can do much for the condition. The best results can be looked for when the nævus is quite superficial and shows no tendency to infiltration. If much infiltration exist the treatment will have to be much more vigorous, and a destructive reaction of slight degree produced. A smooth, supple, and white scar will be left.

Cavernous nævi.—These do excellently under radium, especially when of such shape that "cross-fire" radiation is possible. Half-strength applicators screened with 1/10 mm. of lead should be employed, and the exposure should be from one to three hours' duration, spread over three successive days. Little or no surface reaction is produced by this method of treatment, and the nævus shrinks gradually and steadily. If on palpation the presence of a pulsating vessel is appreciable, the case is not likely to prove completely successful unless the vessel first be ligated.

Warts and papillomata yield readily to exposures, with half-strength apparatus unscreened, of from 30 minutes to two hours' duration, according to the size and thickness of the lesion. The reaction is but slight and the resultant scar scarcely noticeable.

Tuberculosis.

Tuberculosis of glands.—In cases in which surgical measures have been declined for cosmetic reasons radium often proves of considerable value, either when used alone or as an adjunct to vaccine treatment. Heavily screened exposures of 20 or more hours' duration should be resorted to and an effort made to secure "cross-fire" irradiation where practicable. If the glands be caseating, radium treatment is of very little use.

Lupus vulgaris.—As a routine treatment for this disease Finsen light is greatly to be preferred to radium, but where it fails to effect a cure or improvement radium sometimes proves of great use. Unscreened exposures of one or two hours' duration must be given and a destructive reaction produced. The resultant scar is usually firm, smooth, supple, and inconspicuous.

Spring Catarrh.

In this condition the employment of radium is strongly to be advocated, as it will sometimes cure the most intractable cases. Personal idiosyncrasy is, however, a very important

consideration, and it is essential to proceed with great caution, giving short unscreened exposures at intervals of a fortnight, and carefully noting the reaction. If the dosage be accurately adjusted the granulations on the orbital conjunctiva gradually disappear, there is no marked inflammation and no resultant scarring of the mucous membrane.

Skin Diseases.

Keloid.—This condition continues to give most excellent results when treated with radium, and a great improvement, if not complete cure, can be safely predicted when the condition is of recent origin and occurs in young subjects. In tender and painful keloids the anæsthetic effect of radium is generally very marked and appears early in the treatment. Half-strength applicators screened with 1 mm. of silver are almost always employed, and an exposure of from 18 to 30 hours spread over from three to five days, according to the size and thickness of the lesion, is given. This brings about a gradual absorption of the keloid unaccompanied by any surface irritation. If, however, time be of importance, or the keloid prove refractory, screening of $\frac{1}{2}$ mm. of silver or 1/10 mm. of lead may be employed, though the reaction is likely to be definite and accompanied by vesication.

Lupus Erythematosus.—In early cases of this disease, which have not been subjected to much other treatment, one or two exposures not exceeding an hour in duration with a half-strength apparatus, unscreened or screened with 1/100 mm. of aluminium, may suffice to bring about the disappearance of the lesion. Care should be taken to ensure that the applicator employed is sufficiently large to reach well beyond the borders of the patch treated.

Lichenification of the Skin.—Patches of lichenification almost invariably yield to one treatment of ten minutes' duration with a half-strength applicator, unscreened or screened with 1/100 mm. of aluminium. The attendant intolerable itching is often markedly alleviated within 60 hours of the exposure. Some very obstinate cases which have hitherto defied all the usual methods of treatment have responded most favourably to this procedure, the lesions have disappeared and have not recurred.

Pruritus.—The analgesic effect of radium is often of the greatest use in this disease, and short unscreened exposures frequently produce a degree of relief which is unattainable by any other measures. This is especially noticeable if the pruritus occur in association with a definite lesion such as leucoplakia or hyperkeratosis.

Angio-neurotic Edema.

Three patients suffering from this condition have received treatment during the past year. In one instance a cure has apparently been effected; in the other two considerable benefit has been obtained. In view of the comparative rarity of this malady and its intractability to most methods of treatment the particulars of all these cases are given. These notes will be well worth studying in the complete report by those who are interested in this condition.

Arthritis Deformans.

The daily administration of 250 c.c. of radium emanation solution of a strength of not less than 1 millicurie per litre to patients suffering from this obstinate, painful, and crippling disease is sometimes attended by very remarkable results. It is difficult to predict with certainty the degree of improvement likely to occur in any particular instance, but the cases which appear to derive most benefit are those in which the disease is of relatively short duration, and the changes are periarticular in type and multi-articular in distribution. The age of the patient also exerts some influence, those under 40 responding more quickly to the action of the emanation. Cases with a definite gouty history sometimes experience an acute exacerbation of all their symptoms within the first week or ten days of their treatment, but this disturbance is quite transient, and is usually followed by a distinct change for the better. Little or no improvement can be looked for in instances where cartilaginous or osseous changes are predominant, and the radium emanation solution is powerless to bring about the absorption of osteophytic growths or the loosening of bony ankylosis. When limitation of movement is due to periarticular fibrous thickening considerable increase of mobility often follows on the taking of the radium water, and enables patients to perform actions, such as feeding themselves, brushing their hair, shaving, &c., which they may have been powerless to do for some months or even years.

Other favourable effects of the treatment are that the muscular and articular pains are lessened or disappear, the grating of the joints on movement is not so marked, the muscles regain much of their lost tone, and the patient's general health is much improved. This is especially noticeable when the patients are suffering from anæmia, the hæmoglobin index being rapidly increased. The treatment must, however, be persisted in for quite a long time, and at least six weeks are likely to elapse before any change is noted. With the majority of patients the emanation solution produces a definite diuresis, and with a few it acts as a slight laxative, though free purgation has never been observed. Much research work has yet to be undertaken to enable an accurate opinion to be formed of the manner in which radium emanation solution produces these results, as its action appears to be a multiple and highly complex one, but the reinforcing of the body ferments, the increase of tissue oxidation, and the dissolving of uric acid are probably factors which contribute to its success.

Prophylactic Irradiation.

Since the opening of the Radium Institute in August, 1911, numerous patients who have undergone operation for malignant disease have received post-operative prophylactic irradiation. It would be exceedingly difficult, if not impossible, to make any statement as to the precise value of radium treatment in preventing or minimising the danger of recurrence, but as the majority of these patients had suffered from extensive, severe, and rapidly progressive malignant disease, and the operators had expressed grave doubts as to the probability of their remaining free from the disease for more than a few months, the relatively slight proportion of recurrences so far recorded (19 per cent.) does much to justify the routine adoption of post-operative irradiation. It should prove of especial service in those cases of malignant growth in which it has been found impossible to operate well beyond the appreciable area of the disease.

In conclusion, Mr. Hayward Pinch expresses his great indebtedness to his senior assistant, Dr. J. E. A. Lynham, for most valuable help in the compilation of this report. Dr. Lynham was solely responsible for the planning and carrying out of the treatment of many of the cases herein recorded.

RADIUM TREATMENT AT THE ROYAL INFIRMARY, EDINBURGH.

Dr. Dawson Turner's report on the work done in the radium department of the Royal Infirmary Edinburgh, during the year 1914 has just appeared, and is full of suggestive information.

There attended for radium treatment during the past year 63 patients; of these, 36 were in-patients and 27 were out-patients. Thirty-four of the patients suffered from, in all but one case, inoperable malignant disease, 23 of these from carcinoma and 11 from sarcoma. There were 12 cases of rodent ulcer, 6 of exophthalmic goitre, 2 of otosclerosis, 1 of middle-ear deafness, 1 of Paget's disease, 1 recurrent wen, 1 simple tumour, 1 nævus, 1 leucoplakia, 1 warty tumour, and 1 hypertrophied tonsils. Though a cure was not effected in any of the malignant cases, nor considering their advanced nature was it to be expected, yet in practically all of those who were treated more or less benefit was produced by the relief of pain, the cessation of discharges, the healing of ulcerated surfaces, the removal of local growths, and the prolongation of life. In some of the cases radium was used as a prophylactic after the surgical removal of a growth, and sufficient time has not yet elapsed to ascertain its effect. Remarkable results were produced in some of the malignant cases; thus an epitheliomatous growth was entirely removed, first from the posterior wall and then from the anterior wall of the vagina, so that not a trace of it remained; there has, however, been a recurrence which is being treated. In a rapidly growing periosteal sarcoma of the lower end of the femur in a boy aged 13 the application of radium caused the growth to shrink and to become dense, hard, and fibrous, so that whereas, to use the words of the surgeon, Mr. J. W. B. Hodsdon, it bled like an aneurysm on the first introduction of radium, two months later, on a second introduction, it scarcely bled at

all, and it was so hard and dense that it was only with difficulty that the radium could be inserted. This was an illustration of the well-known effect of radium in converting a sarcomatous growth into a fibrous one. Malignant disease of the buccal cavity, the pharynx, larynx, and posterior nares appears to be less amenable to radium, but this may be partly due to the difficulty of administering a sufficient dose in such positions.

The beneficial effect of radium in rodent ulcer is now well recognised. Of the 12 cases treated during the year, 9 were easily cured, the remaining 3 have not yet been long enough under treatment for the effect to be produced. In each case the cosmetic result leaves no room for improvement. In small superficial rodent ulcers a single application may be sufficient, but it is important in order to prevent a recurrence that the deeper parts as well as the superficial should be adequately treated. Several of the cases had previously received without sufficient benefit applications of carbonic snow or large doses of the X rays. Though this may render them, as the Radium Institute reports indicate, more refractory to radium, yet none of those treated during the past year have failed to yield to it.

In the six cases of exophthalmic goitre treated during the year radium was of undoubted benefit, in one case apparently bringing about a definite cure. Its action consists in producing a sclerosis of the thyroid gland following upon an obliterative endarteritis. As the treatment of this condition by radium was novel great care had to be exercised in the earlier cases by giving small doses and keeping careful observation of the patients. Larger doses, which more rapidly produce a beneficial effect, are now administered. A diminution in the exophthalmos and tachycardia are amongst the first results to be observed.

The following is a summary of the cases, excluding the rodent ulcers:—

1. An advanced case of sarcoma under the left eye, with abscesses and an opening into the antrum of Highmore. A dose of 2280 mg.h. was given with temporary benefit.

2. A case of recurrent epithelioma following lupus in a male aged 41, recommended by Mr. D. Wallace. Growth affecting the region beneath the right ear was removed by Mr. Wallace, healed well, except a small patch which healed after a dose of 240 mg.h. of radium. Five months later a recurrence below, into which three tubes of radium were inserted and removed after a dose of 5040 mg.h. Six weeks later Mr. H. Wade reported a great improvement, the growth having practically disappeared. A few weeks later a recurrence occurred above, and radium treatment was given up.

3. Sarcoma of the scapula in a female aged 29, recommended by Mr. A. Miles. Radium used prophylactically after surgical removal of the scapula and inserted anteriorly. A dose of 360 mg.h. only was given owing to the proximity of the subclavian vessels. Three weeks later a rapidly growing recurrence higher up, not where the radium had rested. Two tubes were inserted into the recurrence and a dose of 2520 mg.h. given. A peculiar feature of this case was that the temperature of the patient always fell, and remained down during the radium applications. The radium relieved the patient's pain, which had been constant, but the patient rapidly sank.

4. Recurrent scirrhus in a female aged 37, recommended by Mr. Miles. Breast removed in August, 1912. Some time afterwards a swelling began over the sternum. On admission on Feb. 3rd, 1914, there was a large swelling over the sternum, measuring 3 by 2½ inches, and projecting about 1½ inches. A tube was introduced into the growth and radium applied externally in different positions shielded by 1 mm. of silver. The dose amounted to 5270 mg.h. Six months later the growth had disappeared. Photographs had been taken before and after treatment. Two months later two recurrences, one to the right, one above. A dose of 5700 mg.h. was given, with the result that the swellings were markedly reduced. This patient has ceased to attend.

5. A recurrent carcinoma of the rectum in a female aged 27. An aluminium tube containing radium was placed in a rubber tube and attached to a twisted silver wire. This was introduced so as to lie against the ulceration, and a dose of 1080 mg.h. administered. Mr. Hodsdon considered that this treatment was beneficial; the induration became less and pain was diminished. The patient went home and has not since attended for more treatment.

6. A large epithelioma of the lower jaw unsuitable for radium treatment.

7. An epithelioma of the lower lip in a male aged 55, recommended by Mr. C. W. Cathcart. The diseased area was about the size of a filbert nut; there was a crack in it above, but the mucous membrane was not invaded. A dose of 400 mg.h. was administered. Dismissed three weeks later greatly improved. Told to return in three weeks, but did

not do so for many months, when the condition was so much worse that an operation had to be performed. The case was one which would probably have entirely yielded to radium had the treatment been persisted in.

8. Secondary metastatic sarcoma in a female aged 27, recommended by Professor Alexis Thomson. Eight days after the growth had been removed from the back of the neck a tube of radium was introduced into the wound and a dose of 960 mg.h. administered. A year later her family doctor, Dr. T. P. Gemmell, wrote to say that he had examined her and could find no hardness or swelling near the cicatrix, and that she had made a marvellous recovery after we had expected her cure impossible.

9. Epithelioma of the vaginal walls in a patient aged 40, recommended by Dr. A. H. F. Barbour. Duration some months. Pain and watery discharge. There was a raised warty growth over upper two-thirds of posterior vaginal wall, also in anterior fornix. Microscopic examination showed it to consist of a squamous-celled epithelioma. Operation inadvisable owing to risk of a rectal fistula. 15 mg. of radium protected by 1 mm. of silver were fastened into a speculum and introduced so as to be in contact with the warty growth. A dose of 384 mg.h. was given. Six weeks later the patch was smaller and there was less discharge. 25 mg. of radium in an aluminium tube were attached to a pad protected on the upper surface by lead foil and placed in contact with the growth. A dose of 1050 mg.h. was given. Some local peritonitis and lung trouble followed. In four months' time when the patient returned no trace of the disease could be found on the posterior vaginal wall, but there was a decided plaque-like growth on the anterior wall. 20 mg. of radium protected by silver, 1.3 mm. thick, were placed against the growth and left in, except for douching, for seven days; dose 3200 mg.h. Six weeks later the growth had disappeared except for a trace in the anterior fornix. Two months later she returned with a hard lump on the anterior wall. The growth was rapidly increasing. By the application of 30 mg. of radium in aluminium a dose of 5060 mg.h. was given. A month later she returned complaining of pelvic pain, rectal discomfort, and discharge. On examination under chloroform the posterior vaginal wall, where the original growth had been, was found to be thickened, indurated, and grey coloured. The anterior wall presented the same appearance. Immediately below the cervix was a growth of the size of a gooseberry. The pathologist reported that this showed very extensive necrosis, so that it was impossible to recognise what the original tissue was. The patient is being kept under observation.

10. A rapidly growing recurrent sarcoma of the right orbit, very vascular. A case of Dr. Sims. A dose of 1920 mg.h. was given, but the patient died a few days later with head symptoms.

11. A scirrhus of the left breast in a patient aged 75, recommended by Mr. F. M. Caird. There was a hard tumour with an ulcerating crack and the glands were involved. To relieve pain a dose of 120 mg.h. in aluminium was given to the crack. The pain was relieved and there was great local improvement. The patient ceased to attend.

12. A fibrosarcoma of the right side of the neck in a man aged 34, a patient of Mr. J. W. Struthers. Duration six years. Aching pain. Neck circumference 17½ inches. 20 mg. in aluminium inserted through an incision and a dose of 5400 mg.h. given. Six weeks later growth no smaller, but more movable; pain removed. A large, fresh, deep incision showed a softened area where the tube had lain. Microscopically there were areas of necrosis round the positions in which the radium had been. By means of another tube a dose of 3840 mg.h. was given. Considerable reaction with a discharging sinus followed. Four months later the growth was found to be much smaller and more movable. Patient has ceased to attend.

13. A myeloid sarcoma of enormous size of the side of the face and back of the head in a man aged 54, recommended by Mr. J. W. Dowden. As a palliative a dose of 3360 mg.h. was given.

14. Recurrent carcinoma recti in a female aged 54, recommended by Mr. Hodsdon. Previous operation a year ago. colotomy performed, rectum removed. Now a fistula into the vagina, constriction, tenderness, and pain. 20 mg. in aluminium introduced and a dose of 3840 mg.h. given. Considerable amelioration followed with relief of pain.

15. Recurrent scirrhus in a woman aged 47, a patient of Mr. Caird. As the disease was very extensive the patient was recommended for X ray treatment.

16. Recurrent carcinoma of bowel round a colostomy opening in a female aged 41, recommended by Mr. Cathcart. Diabetic. A tube was inserted into the growth, but ulcerated out in three days. The patient died with head symptoms.

17. Sarcoma of tonsils in a man aged 50, recommended by Dr. Logan Turner. Four months' duration. Could not open mouth much or swallow solids. An ulcerating mass chiefly on right side. 20 mg. in an aluminium capsule at the end of a rod were held for some eight hours a day by the patient

close to, but not actually touching the ulcer. After a dose of 1310 mg.h. the patient ceased to attend. No beneficial effect, except that the ulcer appeared to get cleaner, was observed.

18. Carcinoma of cervix and vagina, advanced ulcerating, in a female aged 49, recommended by Mr. N. T. Brewis. 20 mg. in aluminium and rubber were placed in contact with the growth, and a dose of 3500 mg.h. given. This removed the agonising pain from which the patient suffered, but she died within a week of the radium treatment.

19. Inoperable carcinoma of the floor of the mouth in a man aged 70, a patient of Mr. Miles. Case unsuitable for radium treatment.

20. A case of recurrent sarcoma of the femur in a female aged 23, recommended by Professor Thomson. After amputation above the knee-joint two tubes of radium were inserted and a prophylactic dose of 3360 mg.h. was given. Eight months later her medical man reported that she was going on very well indeed.

21. A recurrent scirrhus in a female aged 70, recommended by Mr. Scott Carmichael. The first operation 19 months earlier; steady pain since. Second operation, June 26th, 1914, when a lump was removed and a tube of radium inserted as a prophylactic. Dose 1440 mg.h., aluminium screen. On being asked to report herself in January, 1915, the patient wrote to say that she was too ill to attend.

22. A male suffering from a malignant enlargement of the cervical glands on both sides. Considered unsuitable for radium treatment.

23. Epithelioma of the upper lip, invading the mucous membrane, in a male aged 58, recommended by Dr. F. Porter. Taken to see Mr. Cathcart who advised an operation.

24. Epithelioma of the left tonsil of eight months' duration in a male aged 41, recommended by Mr. Cathcart. Cervical glands enlarged. 20 mg. of radium in a capsule were held by the patient against the affected area daily, screened by aluminium, until a dose of 1065 mg.h. had been given. Considerable sloughing followed, but no improvement of any consequence. Patient was referred back to Mr. Cathcart.

25. Recurrent epithelioma of the upper jaw in a male aged 46, recommended by Mr. Hodsdon. Two years ago first operation. Now a hard mass growing in a cavity above his dental plate. By means of some radium attached to the end of a wire which the patient held against the growth, a dose of 600 mg.h. was administered. Screen aluminium. The patient ceased to attend.

26. Advanced case of paraffin epithelioma of the right hand in a man aged 57, recommended by Dr. A. Steven. Patient being sent to Mr. H. Wade for advice an operation was suggested.

27. Recurrent periosteal sarcoma of the left knee in a male aged 23, recommended by Professor Thomson. Previous operation four years earlier. Now there is a swelling of the size of a small egg, which Professor Thomson excised, and at the same time inserted 20 mg. of radium in aluminium. A dose of 2880 mg.h. was administered. Six months later his medical attendant wrote to say that there was no recurrence and that the leg was regaining strength.

28. Periosteal sarcoma of the lower end of the femur in a boy aged 13. The parents refused operation. Duration five months; immobility, pain, and swelling. Greatest circumference of knee 13 inches. On Sept. 22nd, 1914, Mr. Hodsdon made an incision and inserted 30 mg., contained in two aluminium tubes, into the swelling. Blood gushed from the growth as though it were an aneurysm. Radium, shielded by silver 1 mm. in thickness, was also applied externally. The position of the internal tubes and of the external capsules was shifted from time to time. A total dose of 8760 mg. hours was given. The boy was sent home. In two months' time, when he returned, it was observed that the swelling had diminished in size, the pain had disappeared, the part was less tender, and he could move it more freely. It had been growing rapidly. By a fresh incision a tube was pushed down deeply so as to be in contact with the bone. The part incised scarcely bled at all, and the tissues had become hard and fibrous, making it difficult to introduce the tube. A dose of 3840 mg.h. was administered. The knee now became more swollen and tender and the temperature rose. It was evident that the contact of the radium tube with the diseased bone was setting up a severe reaction. The boy shortly afterwards returned home. Six months later his medical adviser wrote to say that the right lung was affected and that the patient was sinking. The knee remained *in statu quo*, but was discharging pus from the cavity in which the tube had lain. The radium appeared to have stopped the local growth, but had not prevented a metastasis.

29. A case of epithelioma following lupus erythematosus and excessive X ray treatment affecting the chin in a woman aged 67, recommended by Dr. F. Gardiner. Case unsuitable for radium treatment.

30. Case of epithelioma of the vulva in a patient aged 61, recommended by Dr. Barbour. Case unsuitable for radium treatment except after an operation.

31. Recurrent metastatic sarcoma of right side of the chest in a male aged 35, recommended by Sir Robert Philip. Case unsuitable for radium treatment.

32. Case of exophthalmic goitre in a female aged 28, recommended by Professor Lovell Gulland. Swelling of neck began in August, 1913, but the patient had been getting weaker before then. On admission, tachycardia (140), marked exophthalmos, tremulous, sweating, glycosuria. In March, 1914, patient was given, by external application through silver 1 mm. thick, a dose of 360 mg.h. to the thyroid. On April 24th she returned much better. Gave her a dose of 400 mg.h. On Sept. 14th the pulse was 80, exophthalmos less, better in every way. Gave her a dose of 540 mg.h. On Oct. 17th gave her a dose of 400 mg.h. On Dec. 23rd she returned practically restored to health; pulse 70, no exophthalmos, thyroid cannot be palpated. Professor Gulland writes in reference to this and another case: "This case had a considerable number of applications at long intervals, and has immensely benefited thereby. She has, in fact, within a year returned to normal—an unusually good result. The second case has had only one application and naturally did not do so well, though she also greatly improved."

33. Exophthalmic goitre in a female aged 27, recommended by Dr. F. D. Boyd. Duration three years. Breathlessness, nervousness, tremor of hands, pulse 120, thyroid enlarged, exophthalmos slight. This patient was given a total dose of 1750 mg.h., administered as in the last case. On Jan. 15th, 1915, Dr. Boyd wrote: "The patient seems to have benefited very much from radium, and I think a second dose would be very desirable."

34. Exophthalmic goitre in a woman aged 32, recommended by Professor Gulland. A mild case of three months' duration. Slight exophthalmos, weakness, nervousness, palpitation, oedema, thyroid slightly enlarged. Medicinal treatment so far unavailing. A dose of 600 mg.h. administered externally, as in the last case. This is the second patient referred to in Professor Gulland's letter, in which he described her as being greatly improved. The other three cases of exophthalmic goitre were only given treatment at the end of October, and they have not yet returned to report themselves.

Two cases of otosclerosis and one of middle-ear deafness were treated with radium during the year. They are as follows:—

35. A female aged 52, recommended by Dr. J. S. Fraser. Deaf for 25 years and regarded as hopeless. Dr. Fraser writes: "The raised voice before treatment could only be heard at 6 inches in both ears. After six applications of radium (dose 106 mg.h.) there was no improvement, and the patient stated that the noises had been worse. The raised voice was only heard at 4 inches in the ear which had been treated. This was a case of advanced otosclerosis."

36. Case of early otosclerosis in a female aged 22, recommended by Dr. Fraser, who writes regarding her as follows: "She had been slightly deaf since childhood. Before radium treatment the low voice was heard at 1 foot in the right ear. Radium treatment was commenced in February, 1914. I saw the patient again in May, after she had had a dose of 125 mg.h. of radium, and was suffering from a considerable amount of dermatitis of the external meatus on the right side, probably due to the radium. I saw her for the last time on Nov. 6th, 1914, and found that the right meatus had quite healed. The hearing was about the same as before—viz., low voice at 1 foot."

37. Case of middle-ear deafness in a female aged 45, recommended by Dr. Fraser, who writes as follows: "Patient had been deaf for ten months and complained of noises in the ears. Before radium treatment the raised voice was heard at 1 foot by the left ear. After a dose of 55 mg.h. she stated that the noises were not so bad as before. The voice was heard at about 18 inches by the left ear. I do not think that the difference between 1 foot (before treatment) and 18 inches (after treatment) is of any importance, as a small difference in hearing like this might easily be due to the room being more quiet or to the voice used being rather louder. In conclusion, I am afraid we must report that these cases of chronic progressive middle-ear deafness have not benefited from radium treatment, but this was only to be expected."

38. Case of naevus of the scalp in an infant aged 1 year, recommended by Mr. D. Cotterill. Had been treated by injections of carbolic acid and glycerine. There was a scab in the centre and a raised red ring around. A dose of 115 mg.h. was sufficient to cure this condition.

39. Paget's disease in a female aged 72, recommended by Mr. Miles. To right of nipple was a well-defined crescentic area, red, slightly elevated, and hard. Glands not palpable. Nipple normal. A dose of 1200 mg.h. was administered, guarded by silver and cork so as to spread the effect. The patient has not reappeared for treatment.

40. Warty tumour in a girl aged 18, recommended by Dr. G. Ogilvie. Duration about two years. Has had nitric acid and other applications without benefit. On the left cheek is a wart the size of a threepenny-piece, considerably elevated above the surface. Radium treatment begun on March 24th, 1914, and a dose of 58 mg.h. administered. On June 2nd, 1914, the wart was found to have disappeared and the skin to be practically normal.

41. Leukoplakia. As this case was only admitted for treatment in December, 1914, it is too early to make any report upon

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet: William Bell, J. Westwood, Samuel F. Abbott, Edgar William Todd, Clive Nelson Pitt, and Benjamin Lewitt.

The following appointments have been notified:—F. H. Rees to the *Vivid*, additional, for Plymouth Hospital; S. Worthington and H. G. Moser to the *Victory*, additional, for Haslar Hospital; and R. W. Townley to hospital ship *China*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons: T. D. McEwan and E. J. Steegman, both to the *Pembroke*, additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Alfred Blenkinsop, on appointment as Assistant Director-General, Army Medical Service, to be supernumerary (dated Oct. 29th).

The undermentioned to be temporary Captains:—Dated Feb. 24th: Temporary Lieutenants John Francis O'Malley and Lanyon Edward Owen.

Lieutenant-Colonel William E. Berryman is retained on the active list under Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary (dated Feb. 22nd).

Captain Claude M. Rigby is seconded for service on the staff of the Governor of Bombay (dated Jan. 5th).

Laurence MacLagan-Wedderburn to be temporary Captain (dated Feb. 5th).

The undermentioned to be temporary Lieutenants:—Dated Jan. 23rd: Norman Black. Dated Jan. 25th: Alexander Fleming Wilkie Millar. Dated Jan. 28th: James Patrick Lavery, Walker Stewart Lindsay, Josiah Russell Turner, George Davidson, and George Theodore Cregan. Dated Jan. 29th: John Adam Gib Burton. Dated Jan. 30th: Alfred Castle Warren, John Robert McGilvray, Hubert Samuel Stockton, Frank Reginald Featherstone, Charles de Chanval Peller, Vivian Percival Foote, and Delbert Evans. Dated Feb. 1st: Frederick Patrick Walsh, Geoffrey Fildes, Henry Wardel Snarey Wright, Edmund Claud Malden, William Kenneth Armstrong Richards, Charles Roche, John Wesley Gilbert, Sidney Howard Browning, Kenneth Playfair, James Henry Bampton, Frederick Rosenberg Harris, Thomas Arnold Watson, Thomas Louis Enright, Henry Holman Weekes, John Warnock Bingham, Arthur Harold Wilson, Arthur Geoffrey Pattison Hardwick, William Joseph Burns Selkirk, Robert Murray Fraser, John Reid Forde, Frank Sholl Scott, Herbert Temple Lukyn-Williams, William Deanburn Dunlop, Thomas Howard Frederick Roberts, David Wilson, George William Blomfield James, Francis Joseph Henry, Charles O'Brien, Kenneth Duncan Cameron Macrae, Bernard Rayne Parmiter, James Wilfred McKinney, Ernest Tawse, James David Forrester, Graham Smith, John Perrin Brown, Arthur Robertson Wightman, Reginald Arthur Morrell, Harold Axel Haig, Norman Duggan, Sidney Bertram Radley, Douglas Erith Derry, Lomond Charles Dillon-Kelly, Cecil Francis Dillon-Kelly, Eugene Patrick Leahy, Francis Percival Halkyard, Robert Tindall, Thomas MacKnight Watt, Robert Henry Liscombe, Frank Lee Cleland, Archibald Fullerton, Ernest Eugene Herga, William Anderson Coats, Theodore Essex Roberts, Richard Robins Armstrong, and Alexander Nelson Craig. Dated Feb. 2nd: Malcolm Gross, Arthur Wandersford Comber, and William Anderson. Dated Feb. 3rd: Adrian St. Johnston and Duncan Metcalfe Morrison. Dated Feb. 4th: Claude Emery Freeman, Herbert Smith, and William Barwise Sanders. David John Jones, and Charles Herbert Gouldsmith France. Dated Feb. 5th: Horace James Gater, George Galen Bartholomew, and Franke Chamberlain Hart-Smith. Dated Feb. 6th: Walter Randall Knightley, Philip Maynard Heath, Sydney Boyd Faulkner, Archibald Hamilton Jacob, Henry Beveridge Smith, Joseph Caton-Shelmerdine, Edward Longueville Mansel, Harold Charles Harrison, and Alfred Edward Seller. Dated Feb. 7th: Harold William Wilson, Thomas Pearson Herriot, Archibald Cowe, John Edgar Davies, John Campbell Neil, John Kelly, William MacLeod, Francis Edgar Sprawson, Oliver Beakley Pratt, Tom Watson Wadsworth, Edward Henry Fennessy, Stanley Thorpe Lewis, Drevor Frederick Acton Neilson, and Leonard Hankinson Terry. Dated Feb. 8th: William Henry Croly, Thomas Edwin Hammond, Griffith Llewellyn Jones, Percy Lytton Tempest Bennett, John Hamilton Boag, Charles George Gordon Keane, William Francis MacAlevey, Kenneth Montague Nelson, Arthur Henry Towers, Henry Strawson Turner, Philip Pennefather Warren, Patrick William White, Arthur James Bruce Leckie, Hugh Gwilym Morris, Maxwell Ramsay, and Charles Rowley Nicholson. Dated Feb. 10th: Abram Leach, Andrew Richmond Douglas, Francis Percy Evers, Arthur Loudoun Taylor, William Campbell, Joseph Marmion, Laurence Unthank Geraty,

George Leggat, Christopher Robson Dudgeon, Frank Hamersley Woods, Llewellyn McIntyre Weeks, John Macintyre, Harold Esmond Arnison Boldero, Cedric Sydney Lane Roberts, Henry Albert Gillespie, Henry Carson Duffy, Lennox Ross Broster, James Patrick Fitzpatrick, Louis Thomas Eden, Eric Stewart Marshall, James Ingram Pirie Wilson, Henry George Frean, and Patrick Ashe.

OVERSEA CONTINGENTS: CANADA.

Colonel Guy C. Jones, Director-General of Medical Services, Canada, to be temporary Surgeon-General (dated Jan. 26th).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain George H. Usmar resigns his commission. Captain Thomas Douglas Inch, from the Unattached List, Territorial Force, to be Lieutenant.

The undermentioned Lieutenants are confirmed in their rank:—Frederick Sanders, George S. Pirie, Howell M. Williams, William D. Anderton, Edwin J. Bradley, Frank Oppenheimer, James W. Wood, and George M. Scott.

The undermentioned to be Lieutenants (on probation):—Edward Waller Mann, ex-Cadet of the Officers Training Corps, and William Theodore Hare.

TERRITORIAL FORCE.

Army Medical Services.

Colonel de Burgh Birch, C.B., Retired List Territorial Force, to be Assistant Director of Medical Services, West Riding Reserve Division.

Royal Army Medical Corps.

1st South Midland Mounted Brigade Field Ambulance: Captain Douglas M. Spring to be Major (temporary).

4th London Field Ambulance: To be Lieutenants: Leslie Price Harris and George Brentnall Pritchard.

3rd South Midland Field Ambulance: Major Bertram M. H. Rogers to be Lieutenant-Colonel (temporary).

2nd London Casualty Clearing Station: Captain Claude H. S. Frankau, from the 4th London General Hospital, to be Captain.

2nd Lowland Field Ambulance: James Angus to be Lieutenant.

3rd North Midland Field Ambulance: To be Lieutenants: William Batten Williams and George Fanning Denning.

3rd West Riding Field Ambulance: Surgeon-Captain William Smith Kerr, from the 4th (Hullamshire) Battalion York and Lancaster Regiment, to be Captain.

1st London (City of London) Sanitary Company: Constant Wells Ponder to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance: Alfred Goodman Levy to be Lieutenant.

2nd East Anglian Field Ambulance: Edmund Albert Goulden to be Lieutenant.

2nd London (City of London) General Hospital: Captain Charles A. Lees to be Major on the permanent personnel.

3rd Southern General Hospital: Fielding Clarke to be Captain, whose services will be available on mobilisation.

1st London (City of London) Field Ambulance: Roger Papillon Stewart to be Lieutenant.

1st East Anglian Field Ambulance: Captain William James Hoyten, from Attached to Units other than Medical Units, to be Captain.

2nd Western General Hospital: Thomas Pomfret Kilner to be Lieutenant.

Attached to Units other than Medical Units.—Surgeon-Major Bertram Addenbrooke, from 7th Battalion, The Worcestershire Regiment, to be Major. To be Captains: Honorary Captain Arthur Ricketts, C.M.G., Lieutenant Charles D. Mathias (temporary), and Captain Francis Rowland (from the 6th London Field Ambulance). To be Lieutenants: Hugh Arthur Sandford, Ivan William McKinnon, Ernest Osborne, Frederick George Vicars, Kenneth John Taylor Keer, John James Egerton Biggs (late Captain 7th (Cyclist) Battalion, the Welsh Regiment), and Henry Frederick John Graves. Captain Ellerington Reed Turner resigns his commission on account of ill-health.

COLONIAL MEDICAL SERVICES.

West African Medical Staff.—The death is reported of Dr. J. Atkinson. The following have been transferred on promotion: Mr. H. B. S. Montgomery, Provincial Medical Officer, Gold Coast, to Nigeria as Deputy Principal Medical Officer; Dr. J. W. Collett, Senior Medical Officer, Sierra Leone, to Nigeria as Provincial Medical Officer; Mr. D. Burrows, Senior Medical Officer, Nigeria, to Sierra Leone as Provincial Medical Officer; Mr. E. C. Adams, Medical Officer, Nigeria, to the Gold Coast as Senior Medical Officer; Mr. T. F. G. Mayer, Medical Officer, Gambia, to Sierra Leone as Senior Medical Officer; and Mr. F. J. A. Beringer, Medical Officer, Gold Coast, to Sierra Leone as Sanitary Officer. Dr. E. W. Graham, Senior Medical Officer, Gold Coast, has been promoted to be Provincial Medical Officer. Mr. T. B.

Adam, Captain J. B. Bate, R.A.M.C. (T.F.), Mr. G. Hungerford, Dr. G. R. Twomey, Dr. R. W. Gray, Mr. E. H. Tipper, and Mr. H. G. McKinney, Medical Officers, Nigeria, have been promoted to be Senior Medical Officers. Dr. F. S. Harper, Mr. C. D. Ralph, and Dr. C. V. Le Fanu, Medical Officers, Gold Coast, have been promoted to be Senior Medical Officers. Mr. C. H. Allan, Medical Officer, Sierra Leone, has been promoted to be Senior Medical Officer. Mr. A. C. Lorena, Medical Officer, Gold Coast, has been promoted to be Sanitary Officer. *Retirements*: Mr. M. F. Ellis (on pension), and Dr. B. Knowles. *New appointment*: Dr. E. B. Bate (Gambia). The services of the following officers have been placed at the disposal of the War Office: Captain J. B. Bate, R.A.M.C. (T.F.); temporary Lieutenant D. T. Birt, R.A.M.C.; and temporary Lieutenant G. J. W. Keigwin, R.A.M.C. The services of the following officers have been placed at the disposal of the Admiralty: Temporary Surgeon M. B. Hay, R.N.; and temporary Surgeon J. C. Watt, R.N.

Other Colonies and Protectorates.—Dr. C. M. Rolston has been selected for appointment as a Supernumerary Medical Officer in the Leeward Islands; Dr. J. H. Rankin has been selected for appointment as temporary Medical Officer in St. Lucia; Dr. A. MacDonald, medical officer of health, Kingston, Jamaica, has been selected for appointment as Medical Officer in charge of ankylostomiasis work in Grenada; Dr. F. T. Auden has been selected for appointment as District Commissioner and Medical Officer at Caicos in the Turks and Caicos Islands; Mr. J. G. Lessey has been selected for appointment as Resident Surgeon of the Colony Hospital, Grenada; and Dr. N. H. Bolton has been selected for appointment as a Medical Officer, Zanzibar.

DEATHS IN THE SERVICES.

Staff-Surgeon George Joseph Fogerty, late R.N., recently at Limerick. He joined the service in 1876, was surgeon of the *Carysfort* during the Egyptian War of 1882, and during the naval and military operations near Suakin in 1884 (medal and Suakin clasp and the Khedive's bronze star). He retired in 1898.

Surgeon Charles Harper, late R.N., at Bath on Feb. 16th, aged 87 years. In 1850 he was appointed surgeon to H.M.S. *Phaeton*, and subsequently served on the *Hogue* and the *Impregnable*. Later he became surgeon on the *Exmouth*, the flagship of Admiral Sir Michael Seymour, and served throughout the Baltic Campaign (medal and mentioned in despatches). In 1856 he was appointed to the Royal Hospital, Stonehouse.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8710 births and 7191 deaths were registered during the week ended Saturday, Feb. 20th. The annual rate of mortality in these towns, which had been 19.2, 20.1, and 18.9 per 1000 in the three preceding weeks, rose in the week under notice to 20.7 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 19.3, against 20.0 per 1000 in London. The annual death-rate last week ranged from 9.4 in Leyton, 9.9 in Swindon, 12.0 in Ilford, 12.2 in Acton, and 12.5 in Edmonton, to 29.4 in Merthyr Tydfil, 30.7 in Newcastle-on-Tyne, 35.6 in Southport, 37.7 in Darlington, and 39.8 in Cambridge.

The 7191 deaths from all causes were 633 in excess of the number in the previous week, and included 607 which were referred to the principal epidemic diseases, against 513 and 511 in the two preceding weeks. Of these 607 deaths, 263 resulted from measles, 135 from whooping-cough, 80 from diphtheria, 80 from infantile diarrhoeal diseases, 32 from scarlet fever, and 17 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.7, or 0.2 per 1000 higher than in the previous week. The deaths attributed to measles, which had been 191, 210, and 207 in the three preceding weeks, rose to 263 last week, and caused the highest annual death-rates of 2.9 in Plymouth and in Newcastle-on-Tyne, 3.4 in Northampton, 3.7 in Merthyr Tydfil, 3.8 in Tottenham, 4.4 in Gateshead, 4.7 in St. Helens, 7.0 in Darlington, and 8.1 in Cambridge. The deaths referred to whooping-cough, which had increased from 76 to 125 in the five preceding weeks, further rose to 135 last week; the highest recorded death-rates from this disease were 1.2 in Reading and in Blackburn, 1.6 in Brighton, 1.7 in Wigan, 2.0 in Carlisle, 2.1 in Gloucester, 3.7 in Merthyr Tydfil, and 5.0 in Bootle. The fatal cases of diphtheria, which had declined from 83 to 66 in the four preceding weeks, rose to 80 last week, and included 17 in London, 6 in Birmingham, 4 in Southampton, and 3 each in

Portsmouth, Stoke-on-Trent, Liverpool, Bolton, Manchester, Salford, Preston, Middlesbrough, and Newcastle-on-Tyne. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 73, 68, and 70 in the three preceding weeks, further rose to 80 last week, of which 20 were registered in London, 8 in Birmingham, 6 in Liverpool, and 4 each in Wigan and Oldham. The deaths referred to scarlet fever, which had been 31, 22, and 27 in the three preceding weeks, further rose to 32 last week, and included 10 in London, 3 in Newcastle-on-Tyne, and 2 each in Ipswich, Bristol, and Preston. The fatal cases of enteric fever, which had been 12, 17, and 16 in the three preceding weeks, were 17 last week, of which 4 occurred in London and 2 in Birmingham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3299 in the 12 preceding weeks, had further decreased to 3165 on Saturday last; 295 new cases were admitted during the week, against 326, 365, and 368 in the three preceding weeks. These hospitals also contained on Saturday last 1616 cases of diphtheria, 231 of measles, 65 of enteric fever, 8 of whooping-cough, and 5 of small-pox. The 1802 deaths from all causes in London were 106 in excess of the number in the previous week, and corresponded to an annual death-rate of 20.8 per 1000. The deaths referred to diseases of the respiratory system, which had been 450, 497, and 455 in the three preceding weeks, rose to 459 in the week under notice, and were 214 in excess of the number recorded in the corresponding week of last year.

Of the 7191 deaths from all causes in the 96 towns 203 resulted from different forms of violence and 501 were the subject of coroners' inquests, while 1937 occurred in public institutions. The causes of 45, or 0.6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Leeds, Bristol, Bradford, and in 52 other smaller towns. Of the 45 uncertified causes of death 7 were registered in Birmingham, 4 in Liverpool, 3 in St. Helens, and 2 each in Warrington, Bury, Huddersfield, Sheffield, Hull, Darlington, South Shields, Gateshead, and Carlisle.

HEALTH OF SCOTCH TOWNS.

IN the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1164 births and 1024 deaths were registered during the week ended Saturday, Feb. 20th. The annual rate of mortality in these towns, which had been 22.4, 24.1, and 23.1 per 1000 in the three preceding weeks, fell to 22.8 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 23.1, against 19.3 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 8.9 in Paisley, 10.5 in Clydebank, and 15.1 in Motherwell, to 29.2 in Leith, 32.6 in Ayr, and 37.1 in Dundee.

The 1024 deaths from all causes were 13 fewer than the number in the previous week, and included 139 which were referred to the principal epidemic diseases, against 147 and 122 in the two preceding weeks. Of these 139 deaths, 97 resulted from whooping-cough, 13 from measles, 10 each from scarlet fever and infantile diarrhoeal diseases, 8 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3.1, against 1.7 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 82, 86, and 81 in the three preceding weeks, rose to 97 last week, and included 50 in Glasgow, 27 in Dundee, 4 each in Edinburgh and Motherwell, and 3 each in Greenock and Kilmarnock. The deaths referred to measles, which had been 6, 13, and 11 in the three preceding weeks, were 13 last week, and comprised 6 each in Glasgow and Dundee, and 1 in Edinburgh. The fatal cases of scarlet fever, which had been 12, 17, and 8 in the three preceding weeks, rose to 10 last week, and comprised 5 in Aberdeen, 4 in Glasgow, and 1 in Falkirk. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 15, 16, and 14 in the three preceding weeks, further declined to 10 last week, and included 3 in Glasgow and 2 each in Edinburgh and Aberdeen. The deaths referred to diphtheria, which had been 10, 13, and 6 in the three preceding weeks, rose to 8 last week, of which 4 occurred in Glasgow. The fatal case of enteric fever was registered in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 272, 302, and 278 in the three preceding weeks, further fell to 265 in the week under notice, but were 122 in excess of the number recorded in the corresponding week of last year; 26 deaths resulted from different forms of violence, against 36 and 35 in the two preceding weeks.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JANUARY, 1915.
(Specially compiled for THE LANCET.)

THE LANCET.]

VITAL STATISTICS OF LONDON DURING JANUARY, 1915.

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CITIES AND BOROUGHES.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping- cough.	Enteric fever.	Diarrhoea and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON...	4,516,612	1	1343	731	—	50	—	39	379	26	4	2573	7.4	—	174	26	58	80	9	73	420	1.2	6792	19.6
West Districts.																								
Paddington ...	142,055	—	47	20	—	—	—	—	12	3	—	82	7.5	—	6	2	1	1	1	1	10	0.9	219	20.0
Kensington ...	170,817	—	43	12	—	—	—	2	7	—	—	64	4.9	—	2	2	2	1	—	—	7	0.5	261	19.8
Hammersmith ...	124,750	—	40	12	—	2	—	1	15	—	—	70	7.3	—	11	1	3	6	—	5	26	2.7	206	21.3
Fulham ...	158,849	—	68	14	—	3	—	6	9	1	—	101	8.3	—	4	1	3	1	1	6	16	1.3	209	17.8
Chelsea ...	63,791	—	10	6	—	—	—	—	5	—	—	21	4.3	—	—	—	—	—	—	—	—	—	112	21.8
City of Westminster ...	152,346	—	52	28	—	2	—	2	8	2	—	94	8.0	—	2	—	1	—	1	1	5	0.4	209	13.9
North Districts.																								
St. Marylebone ...	112,892	—	28	13	—	—	—	1	7	—	—	49	5.7	—	—	1	1	—	—	1	3	0.3	179	20.9
Hampstead ...	86,731	—	16	13	—	1	—	1	5	—	—	36	5.4	—	—	—	—	3	—	1	5	0.8	89	14.2
St. Pancras ...	212,497	—	74	46	—	2	—	2	19	1	—	144	8.8	—	5	2	6	5	—	2	20	1.2	381	23.3
Islington ...	324,764	—	107	34	—	2	—	1	34	3	—	181	7.3	—	8	1	5	5	—	5	24	1.0	530	20.8
Stoke Newington ...	50,454	—	22	13	—	—	—	1	—	—	—	36	9.3	—	1	—	—	—	—	1	2	0.5	88	21.6
Hackney ...	223,724	—	44	44	—	1	—	2	24	—	—	115	6.7	—	17	1	1	6	—	10	35	2.0	354	20.7
Central Districts.																								
Holborn ...	45,861	—	7	6	—	—	—	—	4	—	—	17	4.8	—	—	—	—	3	—	—	3	0.9	62	17.7
Finchbury ...	83,212	—	28	15	—	1	—	1	2	—	—	47	7.4	—	2	1	1	6	—	3	13	2.0	182	23.5
City of London ...	17,129	—	5	6	—	—	—	—	—	—	—	11	8.4	—	—	—	—	—	—	—	—	—	28	22.2
East Districts.																								
Shoreditch ...	108,869	—	20	23	—	—	—	3	20	1	—	67	8.0	—	4	—	2	—	—	6	12	1.4	174	21.5
Bethnal Green ...	127,662	1	48	45	—	5	—	2	16	2	—	119	12.2	—	5	1	3	4	1	5	19	1.9	196	20.8
Stepney ...	273,265	—	114	71	—	1	—	4	29	1	1	221	10.5	—	14	2	4	3	—	2	25	1.2	415	20.7
Poplar ...	160,222	—	22	14	—	2	—	—	16	2	1	57	4.6	—	8	2	1	1	1	2	15	1.2	287	23.2
South Districts.																								
Southwark ...	186,941	—	41	30	—	—	—	2	25	—	—	98	6.8	—	12	—	3	5	—	3	23	1.6	344	24.1
Bermondsey ...	124,213	—	23	22	—	1	—	—	8	—	—	54	5.7	—	12	2	2	6	—	3	25	2.6	226	23.6
Lambeth ...	296,724	—	92	51	—	7	—	3	13	1	2	169	7.4	—	15	1	2	4	1	7	30	1.3	448	19.3
Battersea ...	167,338	—	44	21	—	2	—	2	16	1	—	86	6.7	—	17	—	2	1	1	2	23	1.8	220	17.3
Wandsworth ...	338,998	—	80	44	—	2	—	—	24	1	—	151	5.8	—	7	2	3	7	—	—	19	0.7	407	15.8
Camden ...	262,020	—	79	39	—	1	—	3	17	1	—	140	7.0	—	14	—	4	2	—	2	22	1.1	314	15.4
Deptford ...	109,182	—	37	20	—	2	—	—	11	2	—	70	8.4	—	2	4	1	4	—	1	12	1.4	152	17.9
Greenwich ...	96,037	—	43	11	—	1	—	—	15	2	—	72	9.8	—	1	—	2	5	—	1	9	1.2	138	18.4
Lewisham ...	172,433	—	54	36	—	1	—	—	7	1	—	99	7.5	—	2	1	2	1	—	1	7	0.5	208	16.4
Woolwich ...	122,836	—	55	22	—	10	—	—	11	3	—	101	10.7	—	2	1	3	—	—	3	10	1.1	184	20.0
Port of London ...	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 639 births and 617 deaths were registered during the week ended Saturday, Feb. 20th. The annual rate of mortality in these towns, which had increased from 24.0 to 26.5 per 1000 in the four preceding weeks, was again 26.5 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 25.5, against corresponding rates of 19.3 and 23.1 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 31.5 in Dublin (against 20.8 in London and 22.3 in Glasgow), 23.3 in Belfast, 31.3 in Cork, 27.8 in Londonderry, 19.0 in Limerick, and 34.2 in Waterford, while in the 21 smaller towns the mean death-rate was 21.7 per 1000.

The 617 deaths from all causes were 2 in excess of the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against numbers increasing from 32 to 44 in the three preceding weeks. Of these 36 deaths, 12 resulted from whooping-cough, 10 from infantile diarrhoeal diseases, 6 from measles, 4 each from scarlet fever and diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against corresponding rates of 1.7 and 3.1 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had increased from 9 to 17 in the four preceding weeks fell to 12 last week, and comprised 6 in Dublin and 3 each in Belfast and Cork. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had increased from 4 to 13 in the four preceding weeks, fell to 10 last week, and included 4 each in Dublin and Belfast. The fatal cases of measles, which had been 4, 6, and 5 in the three preceding weeks, were 6 last week, of which 5 occurred in Belfast and 1 in Coleraine. The 4 deaths attributed to scarlet fever, of which 2 were registered in Waterford, were slightly below the average in the earlier weeks of the quarter. Of the 4 deaths referred to diphtheria 3 occurred in Dublin and 1 in Wexford.

The deaths referred to diseases of the respiratory system, which had increased from 137 to 182 in the four preceding weeks, fell to 168 in the week under notice. Of the 617 deaths from all causes, 191, or 31 per cent., occurred in public institutions, and 18 resulted from different forms of violence. The causes of 31, or 5.0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.6 per cent.

VITAL STATISTICS OF LONDON DURING JANUARY, 1915.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 7.4 per 1000 of the population, estimated at 4,516,612 persons in the middle of 1914¹; in the three preceding months the rates were 14.0, 12.5, and 9.2 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, Hampstead, Holborn, and Poplar; and the highest rates in Stoke Newington, Bethnal Green, Stepney, Greenwich, and Woolwich. The prevalence of scarlet fever showed a marked decrease from that recorded in other recent months; the greatest proportional prevalence was recorded last month in Fulham, Stoke Newington, Stepney, Greenwich, and Woolwich. The Metropolitan Asylums Hospitals contained 3609 scarlet fever patients at the end of last month, against 4561, 4956, and 4431 at the end of the three preceding months; the weekly admissions averaged 317, against 618, 661, and 445 in the three preceding months. Diphtheria showed a slight decline from the number in the preceding month; this disease was proportionally most prevalent in Stoke Newington, St. Pancras, the City of London, Shoreditch, Bethnal Green, Stepney, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1489, 1630, and 1663 at the end of the three preceding months, had declined again to 1621 at the end of last month; the weekly admissions averaged 160, against 213, 247, and 177 in the three preceding months. Enteric fever also was much less prevalent than it had been in other recent months; the greatest proportional prevalence of this disease last month

was recorded in Fulham, Bethnal Green, Lambeth, Deptford, and Woolwich. There were 50 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 65, 63, and 68 at the end of the three preceding months; the weekly admissions averaged 6, against 11, 8, and 10 in the three preceding months. Erysipelas was proportionally most prevalent in Hammersmith, Islington, Hackney, Shoreditch, Bethnal Green, Stepney, Southwark, and Greenwich. The 39 cases of puerperal fever notified during the month included 6 in Fulham, 4 in Stepney, and 3 each in Shoreditch, Lambeth, and Camberwell. The 26 cases of cerebro-spinal meningitis included 3 each in Paddington, Islington, and Woolwich, and 2 each in the City of Westminster, Bethnal Green, Poplar, and Greenwich; of the 4 cases of poliomyelitis 2 belonged to Lambeth and 1 each to Stepney and Poplar.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the populations of the several boroughs. During the four weeks ending Jan. 30th the deaths of 6792 London residents were registered, equal to an annual rate of 19.6 per 1000; in the three preceding months the rates were 14.1, 14.6, and 16.7 per 1000 respectively. The death-rates last month ranged from 14.2 in Hampstead, 15.4 in Camberwell and in Lewisham, 15.8 in Wandsworth, and 17.3 in Battersea, to 22.2 in the City of London, 23.2 in Poplar, 23.3 in St. Pancras, 23.5 in Finsbury, 23.6 in Bermondsey, and 24.1 in Southwark. The 6792 deaths from all causes included 174 from measles, 26 from scarlet fever, 58 from diphtheria, 80 from whooping-cough, 9 from enteric fever, and 73 from diarrhoea and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in Chelsea or in the City of London; among the other boroughs they caused the lowest rates in the City of Westminster, St. Marylebone, Kensington, Stoke Newington, and Lewisham; and the highest rates in Hammersmith, Hackney, Finsbury, Bethnal Green, Southwark, Bermondsey, and Battersea. The 174 fatal cases of measles were 32 in excess of the corrected average number, the greatest proportional mortality from this cause being recorded in Hammersmith, Hackney, Southwark, Bermondsey, and Battersea. The 26 deaths from scarlet fever were 11 above the corrected average, and included 4 in Deptford and 2 each in Kensington, St. Pancras, Stepney, Poplar, Bermondsey, and Wandsworth. The 58 fatal cases of diphtheria were 11 above the corrected average; this disease was proportionally most fatal in Hammersmith, St. Pancras, Bethnal Green, Greenwich, and Woolwich. The 80 deaths from whooping-cough were 8 below the corrected average number; the highest death-rates from this disease last month were recorded in Hammersmith, Hampstead, Holborn, Finsbury, Bermondsey, and Greenwich. The 9 fatal cases of enteric fever were 5 below the average, and belonged respectively to Paddington, Fulham, the City of Westminster, Bethnal Green, Poplar, Lambeth, Battersea, Lewisham, and Woolwich. The mortality from diarrhoea and enteritis among children under 2 years of age was proportionally greatest in Hammersmith, Fulham, Hackney, Finsbury, Shoreditch, and Bethnal Green. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhoea, was 13.4 per cent. above the average.

BRISTOL MEDICAL MISSIONARY SOCIETY.—The annual meeting of subscribers to this society was held last week. The medical report stated that during 1914 9636 patients had been treated, and 2263 cases had been attended at their own homes. The financial statement showed a small unfavourable balance.

DUBLIN LECTURESHIP IN OPHTHALMOLOGY.—The Board of Trinity College, Dublin, as announced in these columns last week, is about to appoint a lecturer in ophthalmology. The terms of appointment are somewhat novel. The lecturer is to engage to devote himself to the special study of some branch of ophthalmology for a period of the term of his appointment. He is to give evidence of having studied by delivering one or more lectures embodying the result of his researches to the medical men and medical students of Dublin. The annual value of the lectureship is £150, and the lecturer may be re-elected year by year to a maximum of five years. The funds for the purpose were left by the late Mr. R. J. Montgomery, a Dublin oculist.

¹ For the middle of 1915 it is proposed to base estimates of population upon the returns of births, deaths, and migration. Until these are available the estimates for 1914 will be used in the Registrar-General's returns.

Correspondence.

"Audi alteram partem."

URGENCY CASES HOSPITAL FOR FRANCE.

To the Editor of THE LANCET.

SIR,—We hope that you will let us put before your readers the following statement. The arrangements for the Urgency Cases Hospital are so nearly complete that the committee hope to be able to send out the hospital early in March. Its services have been accepted by the French Ministry of War, and the arrangements made have received the approval of the Anglo-French Hospitals Committee. The French military authorities have promised to provide a suitable building or buildings for 60 patients and for the staff. It will be the special work of this hospital to treat severe urgent surgical cases among the French wounded on the lines of communication between the firing line and the base hospitals. The burden already put on French army surgeons in attendance on such cases is wellnigh overwhelming, and it is likely to become not lighter but heavier. The Urgency Cases Hospital, placed some 15 miles behind the firing line, will greatly relieve the present strain on the care of the severely wounded among the French army.

The hospital staff has been appointed as follows:—Consulting surgeon: Major A. W. Mayo-Robson, C.V.O. (who has been kindly permitted by the War Office to go out with the hospital for the first month of its work). Surgeons: Dr. J. A. Cairns Forsyth and Dr. K. E. Leveson Gower Gunn. Assistant surgeons: Dr. A. S. Robinson and Dr. W. H. Ogilvie. Anaesthetist: Dr. R. W. W. Vaughan. Radiographer and electrician: Mr. J. G. Everitt. Secretary: Mr. Harry Eyres (late Consul General at Constantinople). Nursing and domestic staff:—Matron: Miss Curtis (late superintendent, Hammersmith District Nursing Association). 17 nurses, quartermaster, and 14 orderlies; superintendent of laundry and one assistant; and one cook and three assistants.

The hospital has received promises of five or six motor-cars and motor ambulances, to be driven by English chauffeurs. It will take out a complete theatre equipment, instruments, sterilisers, &c.; a complete X ray apparatus, with dynamo, which will also be used for electric lighting; beds and bedding for 60 patients; complete ward equipment; large stores of dressings, anaesthetics, and drugs; and large household stores. Generous support has been given to the hospital, but it still appeals, not only for money to maintain its work, but also for gifts of clothing, bed linen, dressings, and drugs. All donations should be sent to the honorary secretary, Mr. James Baird (cheques crossed Messrs. Cox and Co.), 50A, Curzon-street, W. All gifts in kind should be sent to 10, Stratford-place, W., marked "Urgency Cases Hospital."

We earnestly hope that many members of the medical profession in this country will help, to the best of their power, the good work of this hospital in France.

We are, Sir, yours faithfully,

LAUDER BRUNTON.	E. L. C. EDEN.
W. ARBUTHNOT LANE.	HERBERT POWELL.
A. W. MAYO-ROBSON.	JAMES BAIRD,
STEPHEN PAGET.	Hon. Secretary.

50A, Curzon-street, W., Feb. 22nd, 1915.

PREVENTION OF FROST-BITES.

To the Editor of THE LANCET.

SIR,—In the short article which appeared in THE LANCET on Feb. 6th I have stated briefly the results of some experiments which I had made with oiled silk bags. Several inquiries which I have received since that date have made me realise that the principles which had guided me had not been understood. I propose, therefore, to give shortly a fuller account of my experiments. Meanwhile, I would like to make it clear that the oiled silk was not used by me on account of its low thermo-conductivity or of its superiority to indiarubber as a waterproofing agent. My object was to use the air space between the bag and the skin as the protective agent on account of its low conductivity. The thick woollen sock or pair of socks between the skin and the bag act as a support for the bag, and the knitted wool, which is itself a bad heat conductor, holds the air in its meshes. The thin sock placed outside the bag is intended to protect the bag against injury. It is obvious that to obtain the best results the boots must not be tight or laced tightly. Any waterproof material would act in the same way as oiled silk, the object of which is to prevent the penetration of water in the air space and the soaking of the skin. The oiled silk was selected by me on account of its cheapness, of its softness and adaptability, and of the ease with which damages to it can be repaired.

This method of prevention is based upon well-known physical and pathological principles, which I did not think it necessary to discuss in a preliminary communication.

I am, Sir, yours faithfully,

SHERIDAN DELÉPINE,
Director, Public Health Laboratory.

Manchester, Feb. 23rd, 1915.

CAN EXOPHTHALMIC GOITRE BE SPREAD BY CONTACT?

To the Editor of THE LANCET.

SIR,—Exophthalmic goitre is presumably due to a toxæmia, and there is at the present time an increasing belief that this is the result of some infective condition, probably of intestinal origin. Such a view is strengthened by analogy with McCarrison's work on endemic goitre in India, for there seems little doubt that some intestinal excitant is at the bottom of this condition.¹ There is no doubt about the fact that exophthalmic goitre tends to run in families. This is generally explained as being due to a peculiar susceptibility for the disease in certain families. But is there any evidence that the disease can also be spread by contact from one person to another? My attention has lately been drawn to this latter possibility by two cases of the disease in women, both of whom had intimate friends, not relations, suffering from the same complaint.

The first, Case A, was a patient of the late Sir W. Broadbent, and she discovered she had Graves's disease through comparing her symptoms with those of a friend whom she saw constantly, and who was suffering from it in an advanced stage.

In the second, Case B, more details are available. The patient, a married woman, had a friend who developed Graves's disease in the spring of 1911. She saw this friend once a week pretty regularly for about two years, and in addition the two used to stay in the same house together for a few days

¹ THE LANCET, 1913, vol. i, pp. 147, 219, 365.

three or four times a year. She used to nurse her sometimes. In the spring of 1913 the friend moved away from the neighbourhood, and B's weekly visits stopped altogether. However, they stayed together on several occasions for some days at a time. In the spring of 1914 B herself contracted the disease.

These two cases are to some extent suggestive of the disease being spread by contact. In the case B, however, there was a very considerable interval (viz., three years) between the onset of the disease in the two women, and there is the further point—viz., that B's mother has for some years had symptoms of hypothyroidism, which subside after an occasional course of thyroid extract. Hence to this extent there is a "thyroid history" in the case.

To carry the matter further inquiries were made, through Dr. Hale White's kindness, and answers were received from ten patients who had had exophthalmic goitre. Seven of these had never come across any other cases of the disease so far as they were aware. In the three remaining cases the patients had during their lifetime come in contact with other people suffering from the disease, but in each case the length of time that elapsed between the onset of the disease and the contact was many years, so that they afford no definite evidence in favour of the theory of contacts.

At this stage it seemed the best plan to write and find out if any of your readers have come across cases of exophthalmic goitre among intimate friends, suggesting that the disease could be transmitted by contact. I should be very much obliged for any information on this point.

I am, Sir, yours faithfully,

St. Thomas's-street, S.E., Feb. 20th, 1915. E. P. POULTON.

THE ETIOLOGY OF POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—I am much indebted to Dr. George Jubb for his letter in THE LANCET of to-day's date, in which, although he is not now in a position to give the exact relative position of stables or cowsheds to the infected houses where cases of poliomyelitis occurred in West Kirby, he is able to state that the same horse and cart took round the milk. As Dr. Jubb admits, this fact in no way diminishes the possibility of stomoxys calcitrans acting as a factor in the infection of the cases which occurred. In my opinion the possibility is materially strengthened, because everyone who has had to do with horses must know how biting flies stick to their victims, annoying them even when on the trot.

That I am quite in agreement with the view that some cases of poliomyelitis acquire infection through human carriers will be adequately illustrated by the following quotations from a Brief Note on Two or Three Interesting Carrier Problems in the Epidemiology of Summer Diarrhoea, Infantile Paralysis (Poliomyelitis), and Pellagra, which appeared in *Public Health*, the journal of the Society of Medical Officers of Health, in December, 1914. In the course of this paper I say:—

The channel of infection (of poliomyelitis) is, of course, of importance, particularly from a preventive point of view. Epidemiological evidence points strongly to the existence of human "carriers," as in a few of the Norfolk cases, and the virus has been found in the naso-pharyngeal secretions of contacts. Fortunately there appears to be a natural human insusceptibility to the disease which limits the spread of poliomyelitis by the channel of the nasal or pharyngeal mucous membrane. The maximum prevalence in summer suggests either dust-borne or fly-borne infection. Neustaedter

and Thro¹ state that they have induced the disease in monkeys by inoculating them with dust from sick rooms. That infection can be conveyed by stomoxys has been definitely proved by Anderson and Frost. There are, then, as it seems to me, three principal methods of conveyance of infection: (1) By direct contact with a sufferer or a human carrier; (2) by an insect carrier (more suspicion attaches to stomoxys than any other insect, and there is now direct evidence of its conveying infection); (3) dust.

I then discuss the methods of prevention on the assumption that these methods of conveyance of infection are rightly designated, but having already unduly encroached on your space those interested will please refer to the original article.

I am, Sir, yours faithfully,

J. T. C. NASH,

County Medical Officer of Health.

The Shirehouse, Norwich, Feb. 20th, 1915.

FAITH AND ASTIGMATISM.

To the Editor of THE LANCET.

SIR,—Dr. S. Johnson Taylor, in THE LANCET of to-day's date, is endeavouring to confuse the issue between us. Because he has not been successful in the prescription of low cylinders he says these are of no benefit or effect. On the other hand, in my experience, certain cases have been considerably relieved by their use, hence my advocacy of them; and as my conception of a true physician is one who does all in his power to alleviate man of the ills from which he suffers, therefore, if the correction of a low degree of astigmatism cures a patient, no other treatment being employed, the inference is obvious. Except as padding, there seems to be no necessity for dragging into the discussion the Old Bailey, Harrogate, the Langham Hotel, politics, nor the Church, but Prey's letters, which I mentioned, are an exceedingly useful test for astigmatism.

On one point I am quite in agreement with Dr. Taylor—that is, in the great advantage of experience in general practice before taking up a specialty, and it was during my 10 years as a general practitioner that these cases, due to uncorrected astigmatism, first came under my notice, and a further 14 years as an oculist have convinced me that many patients derive benefit from the correction of low degrees of astigmatism, and the correction required can only be ascertained by an accurate examination, and finally, the glasses prescribed must be precisely fitted.

As it is evident nothing will persuade Dr. Taylor that there are two sides to every question, this will be my last contribution to the discussion.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 20th, 1915. REGINALD EVERSHED.

TREATMENT OF CEREBRO-SPINAL MENINGITIS.

To the Editor of THE LANCET.

SIR,—I see from reports that there have been cases of cerebro-spinal meningitis (meningococcal) at the Crystal Palace and that eight cases have proved fatal. While house physician and assistant pathologist at the Leicester Royal Infirmary I had the opportunity of treating five such cases under Dr. T. A. Johnston of that institution.

All the cases after lumbar puncture showed the typical diplococci both in culture and staining

characteristics, and I outline the method of treatment. Lumbar puncture was performed on admission with examination of a centrifuged specimen of the cerebro-spinal fluid. Within six hours the cerebro-spinal fluid was allowed to drain out till the drip was of normal rapidity, this giving about 50-70 c.c. of the fluid in all cases. 60 c.c. of blood were then drawn from the arm of a healthy relative and the blood centrifuged. About 20 c.c. of this fresh human serum were then mixed with 30 c.c. of Flexner's meningococcic serum, and this mixture injected into the spinal canal between the third and fourth lumbar spines. Five grains of soamin were injected intravenously each day in two cases. Chloroform was administered in each case and the bottom of the bed raised one foot. This procedure was repeated daily for five days, the temperature during that time showing a sharp rise with each injection, but the pulse remaining 80-90 per minute. The injections were discontinued after five days and the temperature immediately fell to normal, and oscillated between 98°-100° F. during convalescence, getting steadier each day.

In only one case was there a relapse, and another injection of the human serum with meningococcal serum was all that was necessary. Pain was acute in some cases after injection and morphia or omnopon was administered freely. One case had neuralgic pains down the legs, due to injury of the nerves of the lumbar region, but phenacetin and aspirin combined in large doses relieved this.

All the cases recovered and left hospital apparently normal, mentally and physically.

I am, Sir, yours faithfully,

NORMAN P. LAING,
Lieutenant, R.A.M.C.

Blackpool, Feb. 19th, 1915.

MILD SMALL-POX.

To the Editor of THE LANCET.

SIR,—May I supplement Sir William Osler's letter in to-day's issue of THE LANCET by recommending a study of Dr. Robert Willan's "Description and Treatment of Cutaneous Diseases," which was published in 1808, and republished with some additions in 1840 by Dr. T. Bateman; also Dr. Willan's article on small-pox, illuminated by a very beautiful coloured illustration, in the *Edinburgh Medical Journal* for 1807. The article is of value as it draws attention to the fact that though the amount of the rash influences the prognosis it does not assist in the diagnosis, and then proceeds to point out the characteristic features of the rash of small-pox by which it may be distinguished from skin diseases.

I am, Sir, yours faithfully,

Dublin, Feb. 20th, 1915.

GEORGE FOY.

IODISED PHENOL AS A DRESSING.

To the Editor of THE LANCET.

SIR,—In the treatment of burns of second degree and all forms of abrasions I should like to call your attention to the value of iodised phenol. Cut away all blisters and paint the whole surface with iodised phenol, being particular to get it well into the angle between the raised epidermis and the true skin. Then cover with sterilised plain gauze and absorbent wool. It is surprising how little pain is felt either during the dressing or afterwards. I repeat the process daily and find that in a week to 10 days the whole surface of a burn has healed without suppuration or even surrounding redness. Recently I treated a child aged 18 months in

this way who had been burnt with benzine from the middle of the leg to the middle of the thigh and round three-fifths of the circumference of the limb. No lotion of any kind was used, and in spite of the dressings being soaked with urine the burn was completely healed by the tenth day. The mother of this child had both her hands burnt at the same time, and as she was obliged to go on using them I did not remove any unbroken skin at first. In her case the healing was much quicker where the skin was removed at once, but she was quite well in 14 days, and said there was very little pain.

I am, Sir, yours faithfully,

Hastings, N.Z., Jan. 7th, 1915.

ROBERT NAIRN.

THE WOUNDED ALLIES RELIEF COMMITTEE.

To the Editor of THE LANCET.

SIR,—The letter in your issue of Feb. 20th dealing with the appeal of the Wounded Allies Relief Committee, signed by Dr. James Donelan, unfortunately conveys a completely erroneous impression of our activities.

The Wounded Allies Relief Committee is not a new organisation, but was started last August, and has already earned the thanks of the British and Belgian authorities. The committee has taken over certain liabilities with regard to Anglo-French hospitals under pre-existing arrangements made with the French military authorities, but this section of its work is only a small department. The Wounded Allies appeal is for Belgium, Serbia, Montenegro, for motor ambulances, a hospital ship, motor kitchens, and other things. Hospitals for the French wounded are perhaps less than one-tenth of the committee's liabilities. The liabilities taken over by the committee are liabilities under arrangements made with the French military authorities under the ægis of a branch of the French Red Cross in France.

I am, Sir, yours faithfully,

L. HADEN GUEST.

Tavistock-square, W.C., Feb. 24th, 1915.

Obituary.

STANLEY RISELEY, M.D., C.M. EDIN.,

CONSULTING OPHTHALMIC SURGEON TO THE ROYAL HOSPITAL,
SHEFFIELD.

Dr. Stanley Riseley passed peacefully away on Feb. 5th at the early age of 47, after a long and distressing illness, borne with patience and fortitude.

Stanley Riseley was a native of Bristol, the son of Mr. Henry L. Riseley, ex-sheriff of that city. He studied medicine at Edinburgh University, where he graduated as M.B., C.M. in 1891, and took the M.D. in 1893. He held various resident posts, including that of house surgeon at Halifax Infirmary and Rotherham Hospital. After serving as clinical assistant at Moorfields and ophthalmic assistant at Middlesex Hospital, he went to Sheffield in 1898 and was elected ophthalmic surgeon to the Royal Hospital. He resigned last year on account of ill-health, and was elected consulting surgeon. For several years he was secretary of the honorary staff, and represented it on the board of management. For some years also he was ophthalmic surgeon to the Rotherham Hospital and the Chesterfield and North Derbyshire

Hospital, and a medical referee for ophthalmic cases under the Workmen's Compensation Act. In 1912 he was President of the Sheffield Medico-Chirurgical Society. He was a major on the staff of the 3rd Northern General Hospital, but illness prevented his being able to undertake active duty. His contributions to medical literature were few, but displayed sound knowledge and ripe judgment. A correspondent writes: "His thorough and painstaking methods, his great kindness and sympathy, gained for him a large consulting ophthalmic practice. In earlier days he was well known, as also were his two brothers, amongst the leading tennis players in the kingdom, and later he was a moving spirit in the Hallamshire Lawn Tennis Club. His frank and straightforward manner, together with an almost boyish enjoyment of life, made his personality a very attractive one, and his untimely end will be sincerely and widely deplored."

Dr. Riseley married in 1901 the only child of the late Dr. Cleaver, of Sheffield. His widow and five children survive him. The funeral, which took place at Ecclesall Church, Sheffield, on Feb. 9th, was very largely attended.

THOMAS WESLEY MILLS, M.A., M.D. MCGILL,
L.R.C.P. LOND.,

EMERITUS PROFESSOR OF PHYSIOLOGY, MCGILL UNIVERSITY.

THIS well-known Canadian teacher and writer died suddenly on Feb. 13th in London of angina pectoris. Dr. Mills was born and educated in Canada. He took his B.A. at the University of Toronto and his M.B. at McGill University in 1878. He was for several years demonstrator of physiology with Professor Osler, and studied at University College with Sir John Burdon-Sanderson and Professor Schäfer. In 1884 he became lecturer in physiology and in 1886 professor of the subject at McGill. He organised the teaching of physiology on modern lines, and was the first Canadian teacher of the subject to have a thoroughly up-to-date, well-equipped laboratory. Among his early contributions to physiology were the studies on cardiac innervation. He was one of the first to follow the fruitful lead of Gaskell. He became much interested in comparative physiology, and the results of a long series of studies are embodied in a work on the nature and development of animal intelligence. In 1889 appeared his "Text-book of Animal Physiology," which was modified in the new edition in 1890 to a "Text-book of Comparative Physiology." He was passionately devoted to music, and in his younger days was himself no mean performer on the violin. In 1906 appeared his "Voice Production in Singing and Speaking," which brought him much reputation outside of medical circles. After a serious illness, he retired in 1910, and had lived in London, devoting himself with extraordinary energy and enthusiasm to the study of modern music.

UNIVERSITY OF LONDON OFFICERS TRAINING CORPS.—The commanding officer of this corps (Lieutenant-Colonel D. S. Capper) asks us to announce that a limited number of young men who are not students of the University will be enrolled for a course of continuous training with a view to qualifying for commissions. Candidates, who must be between the ages of 18 and 28 years and suitable in every respect for commissions in the army, should attend in person to see the adjutant of the contingent at headquarters, University of London, South Kensington. The next course of continuous training will commence on March 15th.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE week's subscriptions to the Fund are very satisfactory, mainly owing to a large anonymous donation of £300 from Dunedin and to handsome subscriptions from Sheffield and District and from the Ontario Medical Association of £250 and \$1000 respectively. "U.C.A.L." sends £82, and the British Milk Products Company a fourth contribution representing a royalty on the sale of Sanaphos. These royalties have now brought nearly £170 to the Fund.

The donation of £100 from the nurses of the Civil General Hospital at Rangoon, announced last week, consisted of part of the proceeds of a very successful entertainment given by the nurses in aid of funds arising out of the needs of the war. We are informed by the nursing superintendent that the total raised was £120, of which £20 were allotted to the fund for North Sea seamen and aviators, but the nurses desired that the larger part should be given to the Belgian Doctors' and Pharmacists' Relief Fund as an expression of their sympathy with those professions, to which the nursing profession is a sister.

IMPORTANT MEETING IN NEWCASTLE.

A meeting of medical men and pharmacists of the Newcastle and Durham districts was held at the Medical College, Newcastle-on-Tyne, on Wednesday, Feb. 17th, when Professor Rutherford Morison presided at a crowded meeting in the lecture theatre.

Professor Morison stated that all the doctors and pharmacists of the north had been invited to the meeting, the object of which was to discover means of helping the Belgian doctors and pharmacists. These could only be helped pecuniarily now. The object of the Fund they were met to support, the Belgian Doctors' and Pharmacists' Relief Fund, was to help towards their reinstatement, and it would not be long before they would get their country back.

Professor C. Jacobs, Professor of Obstetrics in the University of Brussels, then reviewed the recent experiences of his country. Their homes, villages, and towns were destroyed: they might be sorely wounded, but they were, he said, unconquerable. Notwithstanding its "Kultur," Germany had been misled, and had made a grand mistake in invading Belgium. Whatever might be the outcome of this titanic struggle, Germany would be marked eternally as criminal. Germany had been deceived by the grandeur and glitter of her military staff. In Belgium now there were no Flemish, no Walloons, no Liberals, no Conservatives, and no Socialists. They were all one in the struggle for national liberty, awaiting the day of expiation. Germany, in striking her cowardly blow, had coveted control of Belgian riches and treasures, and had feared Belgian competitors for the German trade and industry. His glorious land was as ruined as Pompeii. But the Belgians would sow new harvests, and through insistent endeavour build up a greater fortune in the future. They could never rest until their country was free and avenged, and they knew these things would come, their national flag would fly again, and their gallant King Albert reign. Their devotion to their King and Queen was complete; every boy was being christened Albert and

every girl Elizabeth. Belgium would never die. Never would Belgians part with the spirit to do till the last their duty as they had ever done it. As the spokesman of his Belgian colleagues, he appealed to the doctors and pharmacists that an impulse of international fraternity might come to the aid of Belgian doctors and pharmacists. Those who had remained in the captured towns had done so out of a sense of duty. They had suffered indescribably. Some had been taken as hostages. Twenty-seven had been shot. Widows and orphans had been left deprived of everything. He called upon the medical profession of the whole world, except Germany, to rally to Belgium's help. He had been under German control for three months. Before the Germans took from him his motor-car he had himself been able to see many atrocities, and what the Belgians said of the atrocities, he assured his audience, was not a hundredth part of what the Germans had done in Belgium. He showed on the screen photographs of the havoc wrought in Louvain, Dinant, Malines, and Charleroi.

Sir Thomas Oliver moved a resolution of sympathy with Belgium, to which country the Allies owed an incalculable debt, and of thanks to Professor Jacobs.

Dr. Turner seconded in eloquent terms, and the resolution was carried by acclamation.

Dr. Durant moved and Dr. James Smith seconded a resolution, which was carried, forming a representative committee to raise funds.

Of this committee Professor Rutherford Morison was chosen as chairman, Dr. James Don (1, Grove-street, Newcastle) and Mr. A. S. Percival, M.B. (17, Claremont-place, Newcastle), being the honorary secretaries. The committee is representative of North Northumberland generally, of Newcastle, Gateshead, Sunderland, Cleveland, Tyneside, Morpeth, Bishop Auckland, Blyth, Darlington, Consett, Durham, Hartlepool, Hexham, South Shields, and Stockton. In addition to the officers mentioned, the senior physicians and surgeons of the general hospitals in many of the cities have joined the committee, and among other names are those of Sir G. H. Philipson, Professor R. Howden, Dr. W. D. Arnison, Sir Thomas Oliver, Professor H. Hutchens, Mr. G. Grey Turner, Dr. J. W. Smith, and Professor Ranken Lytle.

THE MOVEMENT IN MANCHESTER AND DISTRICT.

An important meeting was held in the medical school at Manchester on Thursday, Feb. 18th, when Professor Jacobs delivered a stirring address to an interested meeting. Professor Archibald Donald presided.

Professor Jacobs said that Germany had erred terribly in invading Belgium, and would be branded for ever with the mark of the criminal. Belgium was once more the battlefield of Europe; the Belgians had to mourn the loss of countless dead, but they kept in their hearts an undying faith in the triumph of the Belgian cause. He pointed out that Belgian doctors and pharmacists had not been spared in the general suffering, and he appealed to the medical and pharmaceutical world that an impulse of international fraternity might come to their aid. Was it realised, he asked, what Belgium had suffered and was suffering? Duty had bound doctors and pharmacists to their posts in entirely ruined localities; some were carrying on their profession as best they could in the ruined remains of houses, and others had improvised other make-shift shelter. Some had had to work as

navvies in order to have a few pence in their pockets; others had not seen bread for a fortnight, but had lived exclusively on potatoes. Others had a meagre bunch of straw laid on the bare ground for their bedding. He had seen doctors dressed in torn garments and their children in rags. One of his colleagues had to live on wayside herbs for three days and three nights, and his wife shared his fate. Some of their ranks had been taken as hostages, others had been shot, and their widows and orphans left deprived of everything. Belgium, he said, contained 4800 doctors, and at least 1000 of them were now absolutely poverty-stricken and from 2000 to 3500 were suffering cruelly through the war. They had 1800 pharmacists, and at least 300 of them were unable to earn their living, and all, with very few exceptions, were deprived of the most necessary trading stock. These practitioners had given a lesson to the world of unflinching energy, but now their breaking courage would have to be kept up. In this emergency he called on the medical and pharmaceutical professions to rally to their help.

The following subscriptions were received at the meeting:—

First List.

£	s.	d.		£	s.	d.
Rochdale Recruiting			Dr. W. Sankey	2	2	0
Doctors (per Dr.			Dr. Lewis Crowe	2	2	0
Kilroe, Dr. Kerr, Dr.			Dr. E. Higson	2	2	0
Slack, Dr. Mitchell,			Dr. W. Fletcher Shaw	2	2	0
and Dr. Wilton Mills	40	0	Dr. J. Cryer	2	2	0
Anonymous	10	10	Dr. L. E. Scanlon	2	2	0
Sir William Milligan			Dr. F. J. Wheeldon	2	2	0
(second donation)	5	5	Dr. Catherine Chisholm	2	2	0
Dr. Alfred Brown			Dr. Edmund Johnstone	1	1	0
(second donation)	5	5	Dr. J. Craig	1	1	0
Mr. Burgess (second			Dr. R. H. Williams	1	1	0
donation)	5	5	Dr. A. B. Fulton	1	1	0
Dr. Donald	5	5	Dr. A. G. Andrews	1	1	0
Mr. Lindley Sewell	5	5	Dr. R. G. McGowan	1	1	0
Dr. J. Gray Clegg	5	5	Dr. John Watson	1	1	0
Mr. Telford	5	5	Dr. M. J. Chevers	1	1	0
Mr. P. R. Wrigley	5	5	Dr. A. M. Mitchell	1	1	0
Mr. Thorburn	5	5	Dr. W. MacGill	1	1	0
Mr. J. P. Buckley	5	5	Dr. J. Healey	1	1	0
Dr. Reynolds	5	5	Dr. A. B. Bake	1	1	0
Dr. R. B. Wild	5	5	Dr. A. H. Buck	1	1	0
Dr. F. Rawlings	5	5	Dr. C. Wisken	1	1	0
Dr. T. Arthur Helme	5	5	Dr. J. Prince Stallard	1	1	0
Dr. H. Clifford	5	5	Dr. J. W. Stenhouse	1	1	0
Dr. W. K. Walls	5	5	Dr. J. Craig	1	1	0
Dr. W. Wardman	5	5	Dr. H. O. Harthan	1	1	0
Dr. Cunliffe	5	5	Dr. J. H. Ashworth	1	1	0
Dr. Brockbank	5	5	Dr. L. Thorp	1	1	0
A Friend	5	0	Dr. T. N. Orchard	1	1	0
Dr. P. O. Watkin Browne	5	0	Dr. H. H. Rayner	1	1	0
Dr. W. B. Anderton	5	0	Dr. Jos. W. Roberts	1	1	0
Dr. C. W. Brown	3	3	Dr. J. O. Barclay	1	1	0
Dr. Powell White	3	3	Dr. James Laing	1	1	0
Dr. Judson Bury	3	3	Dr. W. Steele Smith	1	1	0
Dr. B. Crawshaw	3	3	Dr. J. R. Carver	1	1	0
L	3	3	Dr. W. F. Dearden	1	1	0
Dr. W. Percy Stocks	2	2	Dr. G. K. Pitearn	1	1	0
Dr. E. Bosdin Leech	2	2	Dr. Florence Robinson	1	1	0
Dr. Arnold Jones	2	2	Dr. E. W. Floyd	1	0	0
Dr. Edwin Jackson	2	2	Dr. J. W. Renshaw	1	0	0
Dr. W. E. Fothergill	2	2	Dr. Miss E. Owen	1	0	0
Mr. Wilson Hey	2	2	Dr. B. Scott	0	10	6
Dr. J. Milne	2	2	Dr. Danziger	0	10	6
Dr. G. E. Loveday	2	2	Dr. C. M. Stallard	0	10	6

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

£	s.	d.		£	s.	d.
"M. R."	2	2	Dr. C. G. Wallis, Hon.			
Lieut.-Colonel H. G. L.			Sec.), first list—			
Wortabet, I.M.S.	3	3	Dr. A. Lawrie	2	2	0
Mr. A. R. Short	2	2	Dr. J. A. Mortimore	1	0	0
Mr. Arthur Edmunds	10	10	Dr. Thos. Berry	1	1	0
Mr. G. R. Turner	5	5	Dr. Beatrice F. Lovi-			
British Milk Products Co.	33	12	bond	2	2	0
Dr. Rosa Bale	1	1	Dr. A. J. Russell	0	10	0
Dr. A. Vetch	1	1	Dr. H. A. Vernon	1	1	0
Dr. H. E. Belcher	3	3	Dr. J. P. Parvis	2	2	0
Greenwich and Deptford			Dr. W. H. Payne	1	1	0
Division, B.M.A. (per			Dr. D. Clay	0	7	6

£ s. d.		£ s. d.		£ s. d.		£ s. d.	
Dr. A. Kirby ...	1 1 0	Dr. Jeffrey ...	0 10 6	Tower Hamlets Division,		Dr. W. M. Feldman	0 10 6
Dr. H. S. Knight ...	1 1 0	Dr. Hamilton-Hume	0 10 6	B.M.A. (per Dr. W. H.		Dr. G. Michael ...	1 1 0
Dr. J. Matheson ...	1 1 0	Rev. J. Cowan ...	0 5 0	F. Oxley, Hon. Sec.),		Dr. E. B. Hastings...	1 1 0
Dr. M. McTann ...	1 1 0	Mrs. Charters ...	0 5 0	second list—		Anonymous from	
Dr. J. S. Davies ...	0 2 6	Mr. J. B. Nichol ...	0 5 0	Dr. G. P. Tooker ...	1 1 0	Dunedin (per Bank of	
Dr. C. G. Wallis ...	1 1 0	Mrs. MacArthur...	0 5 0	Dr. W. G. Gillespie...	1 1 0	New Zealand) ...	300 0 0
Dr. R. L. Wilcox ...	0 10 0	Dr. G. Henderson	0 18 6	Dr. M. Bernstein ...	1 11 6		
Dr. J. R. Frost ...	0 10 6	Collected by Dr.					
Dr. F. M. Turner ...	1 1 0	Young—					
Dr. C. H. Hartt ...	1 0 0	Dr. Marr ...	1 1 0				
Dr. C. G. Gooding...	1 1 0	Dr. Rogerson ...	0 5 0				
Dr. A. E. Crabbe ...	0 10 6	Dr. Young ...	1 1 6				
Dr. A. Purvis ...	1 1 0	Contributions sent					
Dr. S. W. Thompson	1 1 0	to Hon. Sec.—					
Dr. A. T. Drake ...	1 1 0	Dr. P. C. McClagan	1 1 0				
Dr. C. Parke ...	1 1 0	Dr. Oliver ...	0 10 6				
Dr. V. Gideon ...	2 2 0	Dr. Bernard B. Gough...	1 1 0				
Dr. M. E. Tressider..	1 1 0	Dr. John Matthews ...	5 5 0				
Dr. J. Mackern ...	2 2 0	Mr. F. A. Juler ...	2 2 0				
Dr. D. F. Burney ...	1 1 0	Dr. Agnes Henderson ...	5 5 0				
Dr. C. H. Fernie ...	1 11 6	City Division, B. M. A.					
Dr. J. B. Saundry ...	0 10 0	(per Dr. C. F. Hadfield,					
Dr. F. E. Wilson ...	1 1 0	Hon. Treas.), further					
Dr. A. Fothergill ...	1 1 0	list—					
Dr. W. D. Wiggins...	1 1 0	Dr. E. L. Taylor ...	1 1 0				
Dr. G. B. Goodall ...	0 5 0	Dr. T. M. Martin ...	1 1 0				
Dr. R. S. Barker ...	0 10 6	South Staff Division,					
Dr. W. H. Reed ...	1 1 0	B. M. A. (per Dr. H. C.					
Dr. S. D. Bhambha ...	1 1 0	Mactier, Hon. Sec.),					
Dr. R. E. Scholefield	1 1 0	third list—					
Dr. G. Nelson ...	1 1 0	Dr. A. H. Carter ...	1 1 0				
Dr. W. Scott ...	1 1 0	Mr. J. A. Wolverson	0 10 6				
Dr. W. S. Carpenter	0 10 6	"M.D., M.R.C.P. Lond."	1 1 0				
Dr. R. J. Black ...	1 1 0	Dr. W. G. Savage ...	1 1 0				
Dr. E. Spencer Evans	1 0 0	Dr. H. Comer Renshaw.	5 5 0				
Lieutenant P. E. Adams,		Dr. E. A. Edelsten ...	1 1 0				
R.A.M.C. ...	2 2 0	"U.C.A.L." per Mr.					
Ontario Medical Association		Harold Miller ...	82 0 0				
(per Dr. J. Gibb		Mr. W. A. H. Naylor ...	1 1 0				
Wishart), second dona-		Mr. J. C. Wiggins ...	1 1 0				
tion ...	205 11 11	Mr. J. A. Cope ...	0 10 6				
Mid-Staff Division,		Mr. J. T. Mountain ...	0 10 6				
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Stuart Shaw, Hon.		Antcliffe, result of					
Sec.)—		Whist Drive ...	5 0 0				
Dr. T. M. Rowland	0 10 0	Mr. J. L. Murgatroyd ...	0 5 0				
Dr. T. N. Cookson...	0 10 0	Mr. W. White ...	0 5 0				
Dr. L. Gray ...	0 10 0	Mr. J. O. Thomas ...	0 5 0				
Dr. W. M. Clendinnen	1 1 0	Hampshire Pharmacists'					
Dr. A. E. Hodder ...	0 10 0	Association, collected					
Dr. H. M. Morgan...	1 0 0	by (per Mr. F. E.					
Dr. J. K. Butter ...	0 10 0	Bilson)—					
Dr. C. J. Armson ...	0 10 0	Hampshire Associa-					
Dr. F. Arnson ...	0 10 0	tion ...	2 2 0				
Dr. Bull ...	0 10 0	Mr. A. McConachie ...	0 5 0				
Dr. W. H. Horton ...	1 1 0	Mr. W. Andrews ...	0 1 6				
Dr. Stirling Christie	2 2 0	Mr. F. A. Monk ...	0 10 6				
Dr. L. S. Tomkys ...	1 1 0	Mr. W. E. Kirkman ...	0 5 0				
Drs. W. G. Lowe and		Mr. S. G. Bartlett ...	0 5 0				
Bradbury ...	1 1 0	Mr. C. H. Baker ...	1 1 0				
Dr. R. Freer ...	1 1 0	Mr. C. Polgreen ...	0 5 0				
Dr. J. Priestley ...	2 0 0	Mr. W. I. Gradidge	0 5 0				
Dr. R. Holton ...	1 1 0	Mr. F. Oram ...	0 5 0				
Dr. Thos. Dixon ...	1 1 0	Mr. Harry Wilson ...	0 10 6				
Dr. Bradford ...	0 10 6	Mr. A. H. Owen ...	0 5 0				
Dr. Wm. Reid ...	1 1 0	Mr. B. C. Jukes ...	0 5 0				
Dr. H. W. Gosse ...	1 1 0	Mr. G. H. Gare ...	1 1 0				
Dr. J. E. MacKenzie	1 1 0	Mr. W. J. Dodridge	0 5 0				
Dr. A. H. Shaw ...	1 1 1	Mr. F. Wainwright	0 5 0				
Drs. Salt and Lowe	1 1 0	Mr. A. E. Chaston ...	0 10 0				
Dr. T. D. Stuart Shaw	1 1 0	Birmingham Local Com-					
South-Eastern Counties		mittee (per Dr. R.					
(Scotland) Division,		Saundby, Hon. Sec.),					
Edinburgh Branch,		eighth donation—					
B.M.A. (per Dr. M. J.		Dr. and Mrs. Cyril					
Stuart Shaw, Hon. Sec.)—		R. Lunn (proceeds					
Collected by Dr. J. J.		froman "At Home"					
McMillan—		organised by Mrs.					
Dr. J. C. Johnstone	0 10 0	Lunn ...	12 12 0				
Dr. Critchlow ...	1 1 0	Dr. Cordley Bradford	1 1 0				
Dr. McMillan ...	1 1 0	Dr. Douglas W.					
Collected by Dr. A. J.		Eshelby ...	1 1 0				
Campbell—		Dr. J. A. Brown ...	1 1 0				
Dr. McWatt ...	1 1 0	Dr. Beatson Hird ...	1 1 0				
Dr. McVie ...	1 0 0	Dr. H. R. Forrest-					
Dr. J. McWhir ...	0 5 0	Hay (additional)	0 10 0				
Collected by Dr. P. J.		Sheffield and District					
Henderson—		(per Dr. A. E. Naish,					
Dr. Doig ...	2 2 0	Hon. Treas. Sheffield					
Dr. Henderson ...	2 2 0	Fund for Belgian					
Dr. Muir ...	2 2 0	Doctors and Pharma-					
Dr. Somerville ...	2 2 0	cists) ...	250 0 0				
Dr. Menzies ...	1 1 0	Dr. A. Graham Bryce ...	1 1 0				
Dr. Stevenson ...	1 1 0	Dr. C. C. Harris ...	0 10 0				
Dr. Tyrrell ...	1 1 0	Dr. H. Faithful Smith	2 2 0				
Dr. Wilson ...	1 1 0	Norwich Division,					
Collected by Dr.		B.M.A. (per Dr. G. P. C.					
Davidson—		Claridge, Hon. Sec.)—					
Dr. Fleming ...	1 1 0	Dr. Barton ...	1 1 0				
Dr. Lauder ...	1 1 0	Mr. A. J. Blaxland					
Dr. Davidson ...	1 6 6	Dr. Burton-Fanning	2 2 0				
Mr. and Mrs. R. V.		Dr. Chalmers ...	5 5 0				
Mather ...	1 0 0	Dr. Claridge ...	1 1 0				
Mrs. Scott ...	1 0 0	Mr. A. Crook ...	2 2 0				
Miss Michie ...	0 10 0	Dr. Darrell ...	5 0 0				
Mr. W. M. Alex-		Dr. Greene ...	3 3 0				
ander ...	0 10 0	Mr. H. C. Nance ...	2 2 0				
Mr. John Maxwell	0 10 0	Dr. Starling ...	2 2 0				
Mr. A. Gilchrist...	0 10 0	Dr. H. E. Taylor ...	1 1 0				

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £6900 had passed into the Treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries acknowledges with thanks the receipt of surgical instruments from the following donors:—

Dr. A. Hill Joseph, Bexhill-on-Sea; Dr. W. T. Handley, New Cavendish-street, W.; Dr. Mary C. Bell, Harley-street, W.; Dr. G. H. Colt, Aberdeen; Dr. Leishman, Slough; and Dr. Purslow, Birmingham.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—J. E. Cheesman (Sections I. and II.), St. Mary's Hospital; A. E. Gravelle (Sections I. and II.), King's College Hospital; I. F. Mackenzie (Sections I. and II.), Guy's Hospital; A. G. Williams (Sections I. and II.), Cambridge and St. Bartholomew's Hospital; and A. H. Willson (Sections I. and II.), London Hospital.

Medicine.—M. M. Burt (Sections I. and II.), Birmingham; J. R. Crolius (Sections I. and II.), Edinburgh and London; C. S. Dodson (Sections I. and II.), Cambridge; A. Glen (Sections I. and II.), Sheffield; I. F. Mackenzie (Sections I. and II.), Guy's Hospital; E. M. Townsend (Sections I. and II.), Middlesex Hospital; and A. G. Williams (Sections I. and II.), St. Bartholomew's Hospital.

Forensic Medicine.—M. M. Burt, Birmingham; F. W. Chamberlain, Middlesex Hospital; J. R. Crolius, Edinburgh and London; H. A. De Morgan, Middlesex Hospital; L. A. J. Graham and I. F. Mackenzie, Guy's Hospital; D. C. Ogilvie, Middlesex Hospital; A. L. Robinson, University College Hospital; A. G. Williams, St. Bartholomew's Hospital; and A. H. Willson, London Hospital.

Midwifery.—R. H. Chadwick, Leeds; J. R. Crolius, Edinburgh and London; J. D. Ferguson, Leeds; L. A. J. Graham, Guy's Hospital; L. Kahan, London Hospital; I. F. Mackenzie, Guy's Hospital; W. H. Rhys Jones, Charing Cross Hospital; A. G. Williams, St. Bartholomew's Hospital; and G. C. Wright, London Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: M. M. Burt, A. E. Gravelle, I. F. Mackenzie, E. M. Townsend, and A. H. Willson.

UNIVERSITY OF OXFORD.—Dr. Alexander Hill Griffith has been nominated to act as an examiner for the 1915 and 1916 examinations for the Diploma in Ophthalmology.

MENTAL AFTER-CARE ASSOCIATION.—The annual meeting of the Mental After-Care Association for Poor Persons Convalescent or Recovered from Institutions for the Insane will be held at Bethlem Royal Hospital, St. George's-road, S.E. (by permission of the governors of the hospital), on Tuesday, March 2nd, at 3 P.M. The chair will be taken by Dr. Henry Rayner, chairman of the association.

ASSOCIATION FOR PROMOTING THE TRAINING AND SUPPLY OF MIDWIVES.—The eleventh annual meeting will be held, by permission of Miss Lorent Grant, at 75, Barkston-gardens, London, S.W., on Thursday, March 11th, at 3 P.M., when the chair will be taken by Mrs. Humphry Ward. A short address on the Present Position of the Midwife will be delivered by Miss S. M. Glass.

THE Royal Dental Hospital, Leicester-square, has received a donation of £100 from the Worshipful Company of Grocers. The annual general meeting of the governors will be held on Thursday, March 11th, at 5.30 P.M., the Hon. Harry Lawson presiding.

UNDER the will of the late Miss Marjory S. Shaw, of Glasgow, a sum of £500,000 will be divided among charitable institutions at the discretion of the trustees.

The War.

THE HONOURS LIST.

FOLLOWING Sir John French's despatch dated Jan. 14th, and the list of names brought forward by the Commander-in-Chief for gallant and distinguished service in the field, the King has approved of a long list of rewards "for services rendered in connexion with Operations in the Field." The following are the medical officers promoted or appointed to orders:—

Staff.

Colonels (temporary Surgeon-Generals) R. Porter and J. J. O'Donnell, D.S.O., promoted Surgeon-Generals. Major (temporary Lieutenant-Colonel) H. Ensor, D.S.O., promoted Brevet Lieutenant-Colonel.

Surgeon-General Sir Arthur T. Sloggett, C.B., C.M.G., K.H.S., promoted K.C.B.; Surgeon-General T. P. Woodhouse, Colonel M. W. O'Keefe, Colonel E. H. L. Lynden-Bell, and Colonel S. Hickson, K.H.S., appointed C.B.'s.

Colonel R. H. S. Sawyer and Colonel F. H. Treherne appointed C.M.G.'s.

Captain E. L. Moss awarded the Military Cross.

Royal Army Medical Corps and Medical Services.

Bt. Cols.—Lieut.-Cols. A. J. Luther and C. B. Lawson.

Bt. Lieut.-Cols.—Majs. A. W. Hooper, D.S.O., E. W. Bliss, and M. H. G. Fell.

K.C.M.G.—Lieut.-Cols. (tempy. Cols.) G. H. Makins, C.B., and Sir A. A. Bowlby, C.M.G.

C.B.—Surg.-Gen. W. G. Macpherson, C.M.G., K.H.P., Col. F. W. C. Jones, Bt. Col. Sir W. B. Leishman, K.H.P., F.R.S., and Col. (tempy.) Sir J. Rose Bradford, K.C.M.G., F.R.S.

C.M.G.—Lieut.-Cols. G. H. Barefoot (tempy. Col.), C. H. Burtchall, L. T. M. Nash, B. Forde, and G. S. McLoughlin, D.S.O.; Majs. G. T. K. Maurice and E. T. F. Birrell.

D.S.O.—Majs. H. R. Bateman, C. R. Evans, C. M. Goodbody, L. W. Harrison, H. L. W. Norrington, F. A. Stephens, F. A. Symons, V. J. Crawford, A. C. Fox, G. J. A. Ormsby, and N. J. C. Rutherford; Cpts. A. G. Wilson, S. J. A. H. Walshe, and E. T. Potts.

Military Cross.—Cpts. C. Kelly, E. C. Phelan, W. B. Purdon, W. F. M. Loughnan, T. H. Scott, Tempy. Lieut. J. R. Waddy, Lieuts. W. Tyrrell, W. McK. H. McCullagh, Tempy. Lieut. W. W. Ingram, Lieuts. J. FitzG. Gwynne, F. C. Davidson, Tempy. Lieut. E. W. Carrington, Lieut. T. H. Balfour, Sgt.-Majs. W. H. Storey, R. J. Fleming, A. Baker, A. Bennett, J. J. Earp, and H. J. Reeve.

Hon. Capt.—Qmr. and Hon. Lieut. E. J. Buckley.

Indian Army.

Bt. Col.—Lieut.-Col. A. H. Moorhead, I.M.S.

Bt. Lieut.-Col.—Maj. J. M. Sloan, D.S.O.

Military Cross.—3rd Class Asst. Surg. F. B. A. Braganza.

LIEUTENANT ARTHUR MARTIN LEAKE, V.C. (CLASP).

In the *London Gazette* of last week, among the awards of the Victoria Cross to officers and men for conspicuous acts of bravery and devotion to duty whilst serving with the Expeditionary Force, appeared this announcement:—

Lieutenant Arthur Martin Leake, R.A.M.C., who was awarded the Victoria Cross on May 13th, 1902, is granted a clasp for conspicuous bravery in the present campaign.

The following is the description of the act of gallantry which earned Surgeon-Captain Martin Leake, as he then was, the Victoria Cross in the South African War: "While tending the wounded under heavy fire from 40 Boers at 110 yards range at Vlakfontein he was shot three times, but although grievously hurt he refused water to relieve his own thirst until all the others (eight) had had some." The extremely rare distinction of a clasp to the

Victoria Cross has now been awarded to him on the following ground:—

For most conspicuous bravery and devotion to duty throughout the campaign, especially during the period Oct. 29th to Nov. 8th, 1914, near Zonnebeke, in rescuing whilst exposed to constant fire a large number of the wounded who were lying close to the enemy's trenches.

Lieutenant Martin Leake was educated at University College Hospital, and at the time of the South African War went to South Africa in 1900 with the Hertfordshire Yeomanry. On the return of that regiment he remained to join Baden Powell's Police. In September last he rejoined the army with the temporary rank of Lieutenant in the Royal Army Medical Corps. The whole medical profession unites in honouring him.

THE CASUALTY LIST.

The casualties among officers in the Expeditionary Force reported since our last issue include the name of Lieutenant Donald Campbell, R.A.M.C., who obtained a temporary commission in December last. Captain J. A. T. Bell, of the New Zealand Medical Corps, is also reported killed. In the recent serious rioting at Singapore Lieutenant A. F. Legge, Singapore Volunteer Medical Company, Dr. P. N. Gerrard, of the Federated Malay States Medical Service, and Dr. E. D. Whittle were killed. Lieutenant L. Courtauld, R.A.M.C., is reported wounded.

On board H.M.S. *Clan McNaughton*, which has been reported a total loss, were Staff-Surgeon W. Graham Moore-Anderson, R.N., and Surgeon-Probationer R. O'C. Redmond, R.N.V.R.

THE BRITISH SCIENCE GUILD ON ANTITYPHOID INOCULATION.

The British Science Guild, whose executive committee contains names illustrious in nearly every branch of science, has recently published a resolution of its medical committee condemning the publication by lay journals of advertisements by the British Union for Abolition of Vivisection attempting to dissuade soldiers undergoing antityphoid inoculation. One notoriously discreditable advertisement, subsequently disowned by the journal that published it, is referred to, and particularly the following sentence is condemned as untrue: "Inoculation (proved to be an utterly useless and dangerous practice) is forced upon intelligent objectors, even as the Germans would force their 'Kultur' upon unwilling Europe." The committee has not seen a single scientific treatise of any value which has succeeded in proving the inoculation to be "an utterly useless and dangerous practice, and does not believe that such a scientific treatise has ever been even attempted." The committee then quotes the names of the officers of the union: Dr. Walter Hadwen, Viscount Harborton, Lord Tenterden, Mr. H. G. Chancellor, M.P., and Miss Beatrice E. Kidd, and states that it does not think that these persons have ever made such researches into typhoid inoculation, or indeed into pathological and sanitary problems in general, as to justify them in posing as arbiters on a question of this nature, which requires the most expert and impartial consideration. Then protesting against the publication by lay papers of any such one-sided statements by unscientific societies, the committee exposes the situation tersely:—

No scientific theorem is accepted nowadays by scientific men without the consideration of a vast amount of evidence,

generally contained in innumerable scientific publications, the presentment of which even in abstract would fill whole numbers of any daily or weekly periodical. On the other hand, any ignorant or unreasonable person can express in a single sentence his disbelief of this evidence, and thus attempt to dissuade the public from availing themselves of the advantages which science has conferred. Those who are seeking to benefit humanity by medical research are therefore always placed at a disadvantage in public discussions of this kind, because they cannot give a full statement of their arguments, except in a lengthy scientific form, whereas antiscientists can always pretend in a few words that such evidence has been refuted.

The committee appeals to the editors of British periodicals to set their face against the publication in the future of such advertisements, and endorses the satisfaction expressed by the military and medical authorities with the results of the antityphoid inoculation of our troops in the present campaign. The protest is convincingly expressed, and renders a service to truth not only as regards medicine and science, but as regards every technical subject of discussion in which the judicial weight of evidence is countered by an easy and irresponsible denial.

THE EPSOM AND EWELL WAR HOSPITAL.

Much discussion has been taking place in the daily press and questions have been asked in Parliament in regard to the call made upon the committee of the Epsom and Ewell War Hospital to vacate the premises for the racing season, which, although spread over three months, actually occupies only six days—viz., two days in April for the Great Metropolitan and the City and Suburban, and four days in June for the Derby and the Oaks.

The facts appear to be as follows. Soon after the beginning of the war the Grand Stand Association of Epsom Racecourse generously offered the use of the new annexe to their Grand Stand, which was completed and furnished only a few months before the war for a restaurant during race meetings, and which has never been used, to a committee of doctors and residents of Epsom for use as a hospital for sick and wounded soldiers from the front and for such troops as might be quartered in the neighbourhood. The stipulation was, however, made that at the end of six months—viz., on March 6th—the annexe should be restored to its owners to be prepared for use during the racing season as a restaurant and to provide sleeping accommodation for the large retinue of waiters and others employed during the meeting. The hospital committee accepted the use of the building on these terms and proceeded to equip it adequately at a cost of several thousand pounds and convert it into a well-staffed military hospital of 100 beds, in which capacity it has done admittedly excellent work ever since, caring for a large number of our own wounded from the front, including a few Belgian soldiers, and for the troops billeted or encamped in the neighbourhood. The discussion arose over the fact that the Grand Stand Association called on the hospital committee in accordance with the stipulation to hand over the building from the date agreed on, March 6th, that it might be put in order for its original purpose. This course would naturally entail expense, and to some extent danger, through the removal of the 75 patients in hospital; also there would be difficulty in finding other adequate accommodation in the neighbourhood, and this at a time when the

war hospital accommodation generally needs increasing to a considerable extent. Even locally negotiations are going on to take over one of the asylums so as to provide an additional 2000 or 3000 beds. On behalf of the Association it was claimed that a bargain is a bargain; that the hospital has had the valuable use of the building, together with beds, blankets, and kitchen equipment free for six months, and that it could have them again when the racing season ends early in June; and that the Association has already incurred the cost necessarily attendant on wear and tear, so that it was considered somewhat unreasonable that it should be asked in addition not only to forego the possibility offered by its short season to recoup itself to some extent for all the expenses of the idle season, of which the hospital has had all the benefit, but to add to its expenses by providing sleeping accommodation for its staff. The contention of the secretary, Mr. Henry Dorling, is that if the hospital occupation should continue without a break the Government might commandeer the building and pay compensation for the loss of its use. On the other side the hospital committee have recognised, like Mr. Dorling, that a bargain is a bargain, and made the following points: The Association has got along from the beginning until this year without the restaurant building, and in view of the altogether unprecedented and serious state of national affairs it might continue to do so this year. The hospital was equipped and is supported by the liberal contributions of Epsom people, and the work of the medical staff and much of the lay work are voluntary, while if the hospital has to be removed for three months the expense of removal and return will fall on the subscribers, while such removal would hardly be free from at least serious inconvenience to some of the patients. Save for a small cottage hospital in Epsom, only just sufficient for local needs, there is no other provision for several miles round for civil needs and none at all for military cases, while hospital accommodation is constantly needed for the 5000 recruits stationed in and around Epsom. Moreover, the exceptional suitability in all respects of the building to its present purpose, its convenience in the matter of locality, and its unexampled salubrity all render it impossible of replacement. On all these counts the feeling in Epsom itself, including even the greater part of the sporting element, which is quite powerful there, is strong that the exceptional situation imperatively demanded whatever sacrifice on behalf of King and country might be requisite at this crisis. This feeling was well expressed by the Duke of Portland, who in a letter to the *Times* of Feb. 19th said that when this country was coping with a Herculean task more formidable than any with which she had tried conclusions in the course of her history, it was nothing less than the duty of all men, racing men included, to subordinate their own to the common interest. It is with real satisfaction that we now learn that arrangements satisfactory to all parties have been made as a result of a conference between the Grand Stand Association, the hospital authorities, and the War Office. The hospital authorities are to continue in occupation of the building, but during race weeks one storey, that which is connected with the grand stand by a bridge, will be placed at the disposal of the Grand Stand Association, special arrangements being made during the race meetings for the feeding of the patients.

HÔPITAL ANGLO-FRANÇAIS.—Mr. H. W. Carson sends us the following account of the work of this institution:—The Hôpital Anglo-Français at Le Tréport, Seine Inférieure, which has accommodation for 65 patients, was founded by the Hon. Lady Murray, under the British and French Red Cross, for the reception of wounded French soldiers. It occupies a newly built hotel, which has not as yet been open to visitors, standing in its own grounds of some three acres on the high cliffs south-west of Le Tréport, overlooking the sea. The sanitary arrangements are excellent, practically every room having hot and cold water fitted, and there are many bathrooms. The medical and nursing staff is English, and includes a surgeon, two dressers, three sisters, and three probationers. In addition there is a staff of seven *infirmiers*, French male nurses attached to the army, who do not, however, take any part in the actual nursing. By kind permission of Colonel Clark, R.A.M.C., who is in charge of a 500-bed army hospital on the same estate, the X ray and pathological work is undertaken by members of the Royal Army Medical Corps staff, and this assistance has proved invaluable.

The hospital received its first cases on Dec. 12th when 50 arrived, and since then the average number of beds occupied has varied between 45 and 55. Patients come direct from the front *via* —, and in some cases have arrived within 24 hours of their receipt of injury. But the time varies very much and averages perhaps nearer three days. The last part of the journey —, about 28 miles, is done by motor ambulance, a rather trying journey, as at this time of year the roads in Northern France are not at their best. It may interest readers of THE LANCET to hear some details of cases under treatment. At first a number of perforating wounds of the hand were received, and this is perhaps the commonest form of wound. A rifle bullet wound is a rarity, the great majority being due to shell or bomb, nearly all presenting multiple injuries. Shrapnel wounds are not common. Wounds by bomb explosion, apparently large bombs thrown by howitzers, are sometimes very severe, affecting the limbs chiefly; but, of course, it is probable that abdominal and thoracic wounds from this cause are too severe to be sent to us as we are 50 miles from the front. Wounds of bone are in nearly all cases very severe, the bone being splintered into many fragments at the point of impact. If the femur is fractured it is our experience that a large extravasation of blood occurs, and as this soon becomes septic an abscess forms, often extending widely in the thigh. So far we have seen only two cases where a hole has been drilled through a bone without causing solution of continuity, both rifle bullet wounds, one of the tibia and the other of the ulna. Injuries to nerves have been rare, a division of the ulna nerve in the forearm by a rifle bullet, and the involvement of the musculo-spiral nerve in a severe fracture of the humerus being the only cases noted of late. The following cases have presented some unusual features of interest:—

Shell wound of thigh.—The upper and inner aspect of the right thigh was lacerated by shell fire, causing a wound 10 inches by 12 inches. There was no injury to the femur or to the femoral artery, and the wound is healing satisfactorily.

Bullet wound of temple with destruction of both eyes.—The bullet entered 1 inch behind the outer canthus of the right eye, passed through the right orbit, upper part of the nose, and left orbit, destroying the globes of both eyes. There were no complications, and the patient is doing well.

Fracture of left femur with injury to knee-joint.—Shell wound, fracturing the femur 6 inches above knee-joint and opening the knee-joint by destroying the patella, only a few fragments of which were found. Amputation was necessary above the seat of fracture of the femur.

Abdominal wound.—Patient reached hospital six days after receipt of the injury. Shell wound. A hole 3 inches in diameter just above the symphysis pubis led downwards and to the right, laying bare the right side of the interior of the bony pelvis, fracturing the right os pubis and ischium. The portion of shell had been removed through the right buttock before admission. No injury to bladder or intestines. The wound was very septic, and on the tenth day from the receipt of injury secondary hæmorrhage occurred resulting in death. At no time was there any indication of peritonitis or injury to a hollow viscus. In addition there was a compound comminuted fracture of the right tibia.

Fracture of fibula.—Bullet wound. In this case an aneurysmal varix of the peroneal vessels occurred with effusion of blood into the tissues of the calf of the leg. Mr. W. E. Hills, who was "médecin chef" at the time, was obliged to tie the popliteal artery, and the operation was entirely successful.

These are but a few chosen from a number of severe injuries which this hospital has treated during the two months of its existence. The most noticeable feature is that every case without exception is septic on arrival. Aseptic surgery is not even thought of, and even the most rigid antiseptic treatment appears at first unavailing. Peroxide of hydrogen seems to give the best results, and this and izar are our sheet-anchors and fomentations are the invariable dressing. We have so far had no tetanus cases. Most have had a prophylactic injection of antitetanic serum before arrival, and where this has not been done an injection is given here if the injury is not more than 48 hours old. Perforating wounds of the hand heal very quickly as a rule in spite of the fact that most of them have comminuted fractures of one or more metacarpal bones. The method of healing is practically the same in all—namely, rapid healing of the palmar wound and a more gradual closing of the dorsal, which is delayed by the escape of small pieces of bone. In dealing with fractures of the long bones an effort is made to save all the fragments, but the septic condition prevents plating or wiring operations. A great difficulty is experienced in finding a splint which will keep the fractured ends at rest during the dressings, but in spite of this fractures unite without any marked deformity. We receive patients from all parts of France and French North Africa, and the varieties of patois for those of us who are not linguists make a ready excuse for any difficulty in understanding. We have now under our care, —, who speaks excellent English, but one might well say, in the wards at any rate, "no English spoken here," for the French Tommy is essentially a unilinguist. One carries away a very pleasant impression of the French soldier. He is brave, modest, an excellent patient, and when convalescent full of fun. Their kindness to one another is delightful to witness and their gratitude to their hosts most touching.

THE AMBULANCE DEPARTMENT OF THE ORDER OF ST. JOHN IN INDIA.—The ambulance department of the Order of St. John started work in India as far back as 1888, but it was not until 1900 that any definite attempt was made to establish the Order in that country. Between 1905 and 1908 the work of the association languished, but in 1909 Lord and Lady Minto took up the matter with great enthusiasm, and since that year the progress has been remarkable. In 1908 the total funds in hand were only £20 sterling and now the Indian branch has an ordinary fund of half a lakh of rupees (£4000) and a special Red Cross Fund with a present cash balance of over £10,000 sterling. In 1908 there were only two centres of the association, now there are 300 working actively. On August 7th last, 48 hours after the news of the outbreak of the war reached India, the Indian Council issued a circular letter to its 300 centres, which had been established in all parts of the Indian Empire, asking them to form ladies' committees for the purpose of collecting funds and gifts in kind and material for ambulance detachments should these be formed. A few days later a dépôt for the reception and distribution of these gifts was established at Bombay in extensive premises in one of the best parts of the city.

A special feature of the work of the branch has been to avoid an accumulation of articles of one kind which has occurred in Red Cross work in previous wars, and with this view the medical branch of the army headquarters in India worked out what is called a Unit of Red Cross Gifts, which included the number of articles of various kinds likely to be required for each ten hospital beds. The whole of the collection of gifts in India has been worked on this principle. The number of units despatched to the front has been over 2000, representing a cash value of £40,000. In addition to the despatch of gifts the association has provided a large number of wheeled litters and four motor ambulances for the conveyance of the wounded from the ambulance trains to the special war hospitals for Indian troops which have been established in 12 of the large military cantonments. The Indian Council has remitted £1000 to the Indian Soldiers' Fund and has endowed five beds in the special war hospital which is being organised by the Order of St. John.

in London. It has forwarded considerable sums to the French, Russian, Belgian, and Japanese Red Cross societies and has also given cash grants to the senior nursing sisters of Queen Alexandra's Indian Military Nursing Service proceeding with hospitals from India, and has supplied special consignments for some of these ladies. Its centres have also furnished at short notice trained nurses required for special hospitals. The St. John Ambulance Brigade, which is now firmly established in India, has also been very active, and the whole of the work of removing wounded arriving in hospital ships at Bombay has been entrusted to the Bombay corps of the brigade.

"FROZEN FEET" IN THE FRENCH ARMY.—Our Paris correspondent writes: "Dr. Temoin on Feb. 2nd read before the Académie de Médecine a communication based on a large number of observations by himself and other surgeons in which he points out that there is a class of these cases of so-called 'frozen' feet in which cold is far the least important factor. These 'frost-bites,' attacking often many toes, and resulting in their complete dropping off by gangrene, have been observed in conditions where the temperature has never fallen to freezing point. These false 'frost-bites' have all the appearance of true ones—anaesthesia, redness, the production of phlyctenulae and gangrene. Their pathological mechanism also is the same; they are troubles of local nutrition. Only here these troubles are produced, not by the action of cold, but through the constriction of the feet by the footgear, aided by the slowing of the circulation in the leg, the consequence of the bandages that the French soldiers often use as puttees. The damp aggravates the condition, inducing maceration of the tissues and causing shrinking of the bandages. These eschars and gangrenes are the result of the combined action of inadequately watertight boots too tightly laced and the wearing of too tight bandages. The Russian and German troops, using waterproof and sufficiently loose footgear, and fighting under the same conditions as the French soldiers, have controlled these serious epidemics of 'frozen feet.' Prevention consists in the suppression of leg bandages, the loosening of laces, and the use of fatty substances encasing the entire surface of the foot and leg—oiled paper or greased socks—during the stay of the soldier in the wet trenches. If the frosts come again there will be no more of these so-called frost-bites. Dr. Temoin cites the case of a *chef de service* who, by simply calling on his men when in the trenches to remove their boots for a quarter of an hour twice a day, brought about a considerable fall in the number of 'frozen feet.' Dr. Temoin's paper was considered by the Academy of such importance that it was decided to make an urgent communication of it to the Minister for War."

IRON CROSSES FOR GERMAN MEDICAL OFFICERS.—A Swiss correspondent writes: "German doctors have not been neglected in the lavish distribution of iron crosses. One of the latest lists of recipients contains the names of 138 medical men, of whom 21 are from Hamburg and 8 from Berlin. Three doctors to whom iron crosses were awarded have died at the front. The casualties among Austrian doctors are much higher than those among their German colleagues. A recent list gives the following figures: taken prisoners, 43; missing, 12; wounded, 74; killed, 13; and sick, 121. The attempt to procure Swiss doctors for service on the Austrian-Hungarian battlefields has not been entirely successful. Comparatively few Swiss medical men accepted the invitation in the first instance, and those who crossed into the Dual Monarchy do not seem to have had a particularly happy time. Quite recently three Swiss doctors resigned their positions in the Austrian medical service and returned home. 'Restrictions in responsibility' is the somewhat enigmatic explanation for their action which they have given the Swiss press."

HOSPITAL SHIP TO DUBLIN.—Our Dublin correspondent writes: "A hospital ship, the *Carisbrook Castle*, arrived at Dublin last week carrying some 500 invalided soldiers. In the work of disembarkation the Royal Army Medical Corps was assisted by voluntary aid units of the St. John Ambulance Brigade, under the command of Dr. Lumsden. 100 of the soldiers were sent to Belfast, and the remainder were distributed among the several Dublin hospitals, including the Red Cross hospital in Dublin Castle. Comparatively few of the soldiers are suffering from wounds, but there are many serious cases of frost-bite."

DUBLIN CASTLE RED CROSS HOSPITAL: A ROYAL COLLEGE OF SURGEONS WARD.—A large number of students, past and present, of the Schools of Surgery of the Royal College of Surgeons in Ireland are serving with His Majesty's Navy and Expeditionary Forces. Those at present in the schools anxious to help in any possible way have formed a committee to collect funds to equip a ward in the Dublin Castle Red Cross Hospital, to be called "The Royal College of Surgeons Ward." The honorary treasurers of the committee—Mr. W. H. Carden, Mr. K. Elmes, Mr. J. F. Lyons, Mr. A. Miller, and Miss M. McMullen—will receive and acknowledge subscriptions from old students and their friends.

WOUNDED SOLDIERS IN BELFAST.—Our Belfast correspondent writes: "On Thursday afternoon, Feb. 18th, 110 wounded and invalided soldiers arrived in Belfast from North Wall, Dublin, to which they had been conveyed from Havre in the hospital ship *Carisbrook Castle*. They were transferred from the ship to the ambulance train of the Great Northern Railway Co. of Ireland, which brought them to Belfast, from which they were distributed as follows: to the Military Hospital, Victoria Barracks, Belfast, 20; to the Ulster Volunteer Hospital and the Samaritan Hospital, 35; to the Mater Infirmorum Hospital, 25; to Newtownards Union Infirmary, 20; and to the County Infirmary, Downpatrick, 10. None were sent to the Royal Victoria Hospital. The men are much less seriously injured than the first batch who came home in November and are suffering mainly from frost-bite, rheumatism, and nervous breakdown."

Lieutenant-Colonel Alex. Barclay Lyon, commanding 1st London Casualty Clearing Station, Duke of York's Headquarters, Chelsea, S.W., asks us to state that five medical officers are required in this unit to bring it up to war establishment. Their services would be for the period of the war only.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 17TH.

Paratyphoid Fever amongst the Troops.

Mr. BENTHAM asked the Under Secretary for War whether he would state the number of cases and of deaths from paratyphoid fever amongst British soldiers on the Continent of Europe and in the United Kingdom since August 1st, 1914, and the number of such men who had been inoculated against typhoid fever.—Mr. TENNANT wrote in reply: "In the Expeditionary Force up to Feb. 11th there had been 45 cases of paratyphoid and one death. No information is available as to the number of cases in the United Kingdom nor as to the number of the cases in the Expeditionary Force in which there had been inoculation."

Antityphoid Inoculation in the Army.

Mr. CHANCELLOR asked the Under Secretary for War whether he was aware that typhoid fever was not considered by the medical profession as contagious in the ordinary acceptation of that term, and that until lately typhoid patients had been treated in general hospitals side by side with others and without infecting them; and, if so, whether he would publish a statement to that effect and circulate it throughout the army.—Mr. TENNANT answered: "I am afraid that I cannot agree with my honourable friend. Typhoid is undoubtedly considered to be conveyed by contact, though not to the same extent as scarlet fever, for example, and for some considerable time now special wards in military hospitals have been set apart for these cases."

Mr. CHANCELLOR also asked the right honourable gentleman whether he was prepared from time to time to supply lists of the names and addresses and the condition as regards inoculation of men in the British army who had died from enteric fever.—Mr. TENNANT replied: "The names and particulars as regards inoculation of men in the British army who have died from enteric are invariably obtained and filed at the War Office, and I will consider the possibility of furnishing returns from time to time."

Sickness amongst Troops at the Front.

Lord CHARLES BERESFORD asked the Under Secretary for War whether rheumatism, ague, and weak heart from the effects of rheumatic fever brought about by service at the front were included as casualties.—Mr. TENNANT said in reply: "The figures recently given to the House by the Prime Minister were confined to battle casualties and did not

include cases of sickness. The latter are, however, reported and notified to the relatives in precisely the same manner as other casualties.

Pneumonia in Military Training Camps.

Replying to Sir ALEXANDER HENDERSON, Mr. TENNANT wrote: The number of cases of pneumonia occurring in military training camps in England and Wales during August, September, and October amounts to 494, the number of deaths 68, and the number discharged from the service 10.

The Medical Arrangements at Post Office Centres.

Mr. W. THORNE asked the Postmaster-General whether attendance by the medical officer of his department was compulsory on all sick telephone operators employed at the General Post Office South who were not sufficiently indisposed to remain at home or became indisposed after their arrival on duty; whether complaints had been made by telephonists employed at these exchanges as to delays and the arrangements for patients who desired attention from the medical officers; whether the number of patients who desired attention was daily so large that it was impossible for the doctor to attend to them in the limited time at her disposal, and that operators were frequently asked, after waiting some hours, to postpone their consultation; would he consider whether the number of the staff employed and the number of applications for medical attention would justify the daily attendance of the medical officers from 10 A.M.; and whether he would cause some inquiry to be made into the sufficiency or otherwise of the medical arrangements at the General Post Office South.—Mr. HOBHOUSE replied: The answer to the first part of the question is that if any medical attention is required by a telephonist who is indisposed either on arrival or subsequently, such attention has to be given by a medical officer of the department. No official complaint that I can trace has been made either as to delay or other arrangements. There has been a considerable amount of minor sickness lately and a consequent congestion of patients and some regrettable delay, though no one has been asked to postpone their consultations. It does not appear to be necessary to keep a medical officer in continual daily attendance as there is always a trained nurse at the General Post Office South, and few of the cases are serious. I am calling for a report on the whole question of medical arrangements at those centres where there is a large attendance of staff.

THURSDAY, FEB. 18TH.

The Surgical Treatment of Wounds.

Mr. KING asked the Under Secretary for War whether the army medical authorities had taken steps to derive advantage from the experiments directed to obtain the best antiseptic for wounds as demonstrated by Sir Watson Cheyne at his recent Hunterian lecture.—Mr. TENNANT said in reply: Full advantage has been taken by the army medical authorities of all recent scientific advances in the surgical treatment of wounds.

Temporary Surgeons in the Royal Navy.

Lord CHARLES BERESFORD asked the Financial Secretary to the Admiralty whether young medical officers were entered into the navy as temporary surgeons over the heads of surgeons of the Royal Naval Volunteer Reserve, and on appointment rank as senior to those officers; whether he was aware that very many of these temporary surgeons had lately been students under the surgeons of the Royal Naval Volunteer Reserve, many of the latter officers being consulting surgeons with responsible hospital appointments in civil life; and whether the Admiralty would take steps to have this disability removed.—Mr. MACNAMARA answered: The facts are as stated in the question of the noble lord, and the question is now receiving the consideration of the Board.

First-aid Classes in Ireland.

Mr. BOLAND asked the Chief Secretary to the Lord Lieutenant of Ireland how many first-aid and ambulance work classes had been organised officially through Government departments in Ireland since the outbreak of war; the number of students enrolled; and what further facilities would now be given with a view to the extension of the number of classes.—Mr. T. W. RUSSELL (on behalf of Mr. BIRRELL) replied: Under regulations issued by the Department of Agriculture over 390 classes had been held in which over 10,000 pupils in all were enrolled. Of these classes, 304 were in first-aid to the injured, 179 in hygiene and emergency nursing, and 8 in ambulance work. The department do not regard the formation of classes in these subjects as any longer a matter of urgency, and accordingly they have since Dec. 31st last required that, except in very exceptional circumstances, classes should be recognised only if conducted under the conditions of a local scheme of technical instruction. If a technical instruction committee agrees to form such classes the department recognise them as eligible for grants under the conditions of their programme for technical schools and classes.

MONDAY, FEB. 22ND.

Release of Medical Non-combatants.

Replying to Lord ROBERT CECIL, Mr. PRIMROSE (Under Secretary for Foreign Affairs) said: An arrangement has been made with the German Government for the mutual release of civilian doctors, and negotiations are now in progress for the mutual release of medical officers of the military and naval forces. In a note to the United States Ambassador of Dec. 31st last H.M.'s Government offered to release the German medical personnel on condition of reciprocity, and we hope that an agreement on this subject will shortly be reached.

Insecticides on Imported Fruit.

Sir WALTER ESSEX asked the Parliamentary Secretary to the Board of Agriculture whether he had recently had complaints of the arrival from overseas of cargoes of apples upon which traces of poisonous insecticides were found, and, if so, in how many cases; whether close observation was being made upon incoming deliveries; and were steps being taken to prevent danger to public health from this source.—Sir HARRY VERNEY answered: No complaints have been made to the Board as to the presence of insecticides on imported fruits. Two cases were, however, brought to their notice last year of the presence of a fungicide, but the amount of the latter was unimportant. The matter is not one with which the Board are empowered to deal, but they published a note in their Journal for June, 1914, warning growers to remove all traces of sprays before marketing their fruit.

TUESDAY, FEB. 23RD.

The Production of Drugs.

Sir J. D. REES asked the Secretary to the Treasury whether the Government proposed to take special steps to facilitate the use of alcohol for commercial purposes in order to create favourable conditions for competition with Germany in the production of fine drugs.—Mr. ACLAND replied: So far as can at present be seen, there is no reason to suppose that the facilities available under the existing law are inadequate for this purpose.

WEDNESDAY, FEB. 24TH.

Spotted Fever in Essex.

Mr. ALDEN asked the Under Secretary for War whether he was aware that spotted fever had broken out in some parts of Essex; whether, under the circumstances, he would give special orders that the billeting carried out in all such districts should be done as carefully as possible and due precaution taken against overcrowding; and whether the local sanitary authorities were in all cases consulted before soldiers were billeted in large numbers.—Mr. TENNANT replied: I regret to say that spotted fever has broken out in some parts of Essex. Special orders have been issued with regard to billeting, and due precautions are being taken against overcrowding. The local sanitary authorities are consulted in all cases.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BURLAND, J. A., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Paignton District of the county of Devon.
HENNESSY, D., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Adviser to the Irish Insurance Commissioners in Bandon and Murragh Dispensary Districts.
HOWIE, MARY E., M.B., B.S. Durh., has been appointed School Medical Inspector under the Aberdare Education Authority.
LYND, J. C., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Limavady Post Office and Subdistrict Offices.
NICHOLSON, BALFOUR S., M.B., C.M. Glasg., has been appointed Tuberculosis Officer for Derby County.
SHARPE, FREDERICK A., M.D. Lond., has been appointed Medical Officer of Health of Barnsley.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried, Salary £150 per annum, with board, washing, and lodging.
BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon, Salary £150 per annum, with residence, board, and laundry.

- BIRKENHEAD BOROUGH HOSPITAL.**—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
- BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.**—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
- BIRMINGHAM, YARDLEY-ROAD SANATORIUM AND ANTI-TUBERCULOSIS CENTRE.**—Third Assistant Medical Officer. Salary £200 per annum, with board and residence.
- BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.**—House Surgeons, Senior and Junior. Salary £150 and £130 per annum, with board, residence, and laundry.
- BOLTON UNION.**—Resident Assistant Medical Officer for Townleys Hospitals at Farnworth, near Bolton. Salary £250 per annum, with apartments, washing, and attendance.
- BOOTLE BOROUGH HOSPITAL.**—Junior House Surgeon. Salary £100 per annum, with residence, board, and laundry.
- BRISTOL EYE HOSPITAL.**—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
- BRISTOL GENERAL HOSPITAL.**—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
- BROADMOOR STATE CRIMINAL LUNATIC ASYLUM, Crowthorne, Berks.**—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, rooms, washing, and attendance.
- BURNLEY, VICTORIA HOSPITAL.**—House Surgeon. Salary £135 per annum, with residence, board, and washing.
- BURSELEM, HAYWOOD HOSPITAL.**—Female Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.
- BURY INFIRMARY.**—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
- CAMBERWELL, CONSTANCE-ROAD INSTITUTION, East Dulwich, S.E.**—Temporary Resident Medical Officer. Salary at rate of £300 per annum, with apartments, board, and washing.
- CANTERBURY, KENT COUNTY ASYLUM, Chatham.**—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
- CANTERBURY MENTAL HOSPITAL.**—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance. Also Locum Tenent Assistant Medical Officer for about a fortnight. Salary £8 6s. per week, with board, lodging, washing, and attendance.
- CANCER HOSPITAL, Fulham-road, S.W.**—House Surgeon for six months. Salary £100 per annum.
- CARMARTHEN, JOINT COUNTIES ASYLUM.**—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.
- CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.**—Resident House Surgeon. Salary £50 per annum, with board and residence.
- CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.**—Third Honorary Anesthetist.
- CROYDON GENERAL HOSPITAL.**—Honorary Radiographer.
- DARLINGTON HOSPITAL AND DISPENSARY.**—House Surgeon. Salary £150 per annum, with board, attendance, and laundry.
- DEVONPORT ROYAL ALBERT HOSPITAL.**—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
- DUDLEY, GUEST HOSPITAL.**—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
- DUMFRIES AND GALLOWAY ROYAL INFIRMARY.**—Female Resident House Surgeon. Salary £120 per annum.
- EAST HAM BOROUGH EDUCATION COMMITTEE.**—Temporary Assistant School Medical Officer. Salary £300 per annum.
- EAST HAM, COUNTY BOROUGH OF.**—Tuberculosis Officer. Salary at rate of £500 per annum.
- ECCLLES AND PATRICKROFT HOSPITAL.**—House Surgeon, unmarried. Salary £70 per annum, with board, lodging, and washing.
- EDMONTON UNION INFIRMARY, Bridport-road, Upper Edmonton.**—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with residential allowances.
- ESSEX EDUCATION COMMITTEE.**—Temporary Female School Medical Inspector. Salary £300 per annum.
- FIJI (THE GILBERT AND ELLICE ISLANDS PROTECTORATE AND THE SOLOMON ISLANDS PROTECTORATE).**—Three Medical Officers. Salary £350 per annum, free quarters provided.
- GLASGOW, GOVAN DISTRICT ASYLUM, Hawkhead, Cardonald.**—Senior Assistant Medical Officer. Salary £250 per annum, with board, apartments, and laundry.
- GREAT YARMOUTH HOSPITAL.**—House Surgeon, unmarried. Salary £200 per annum, with board, lodging, and washing.
- HALIFAX ROYAL INFIRMARY.**—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
- HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.**—Assistant Medical Officer and Second Assistant Medical Officer. Salary £180 and £170 per annum respectively, with board, lodging, washing, and attendance.
- HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.**—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.
- HULL, CITY AND COUNTY OF KINGSTON-UPON-HULL.**—Temporary Senior Tuberculosis Medical Officer. Salary at rate of £500 per annum.
- HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.**—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry.
- LEICESTER ROYAL INFIRMARY.**—House Physician. Salary at rate of £120 per annum.
- LIVERPOOL, ROYAL SOUTHERN HOSPITAL.**—Three House Surgeons and Two House Physicians, each for six months. Salary at rate of £60 per annum, with board and residence.
- LIVERPOOL, WEST DERBY UNION, MILL-ROAD INFIRMARY.**—Two Temporary Assistant Resident Medical Officers, unmarried. Salary at rate of £300 per annum each, with board, &c.
- LONDON FEVER HOSPITAL, Liverpool-road, N.**—Assistant Resident Medical Officer. Salary £250 per annum, with residence and board.
- LONDON HOSPITAL, E.**—Assistant Surgeon.
- MANCHESTER, COUNTY ASYLUM, Prestwich.**—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
- MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.**—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.
- MANSFIELD AND DISTRICT HOSPITAL.**—House Surgeon. Salary £200 per annum, with apartments, board, and laundry.
- MELTON, SUFFOLK DISTRICT ASYLUM.**—Second Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and laundry.
- METROPOLITAN ASYLUMS BOARD: INFECTIOUS HOSPITALS SERVICE.**—Assistant Medical Officers. Salary £250 per annum, with board, lodging, and washing.
- MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.**—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.
- NEWPORT (MON.), ROYAL GWENT HOSPITAL.**—Resident Medical Officer. Salary for first six months at rate of £103 per annum, second six months £125, and third six months £150, with board, residence, and laundry.
- NORFOLK EDUCATION COMMITTEE.**—Assistant Medical Officer. Salary £300 per annum.
- NOTTINGHAM GENERAL HOSPITAL.**—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.
- NOTTINGHAM, NOTTS COUNTY COUNCIL.**—Second Assistant Tuberculosis Officer. Salary £400 per annum.
- PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.**—House Surgeon. Salary at rate of £30 per annum, with board, residence, and washing.
- PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.**—Honorary Physician to the Skin Department.
- ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.**—House Anesthetist. Salary £60 per annum.
- ROYAL EYE HOSPITAL, Southwark.**—House Surgeon. Board and quarters, &c.
- ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.**—Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and washing.
- ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.**—Second Resident Medical Officer. Salary at rate of £100 per annum, with board and washing. Also Temporary Honorary Assistant Physician to Out-patients.
- ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.**—House Surgeon. Salary £100 per annum, with board, lodging, and washing.
- ST. MARY ISLINGTON INFIRMARY, Highgate Hill, N.**—Junior Assistant Medical Officer. Salary at rate of £140 per annum, and all found.
- ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.**—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.
- SALFORD ROYAL HOSPITAL.**—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.
- SALFORD UNION INFIRMARY, Hope, Pendleton.**—Medical Superintendent. Salary £500 per annum, &c.
- SALISBURY GENERAL INFIRMARY.**—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.
- SERBIAN RELIEF FUND.**—Physicians required.
- SHEFFIELD CHILDREN'S HOSPITAL.**—House Surgeon. Salary £150 per annum, with board and residence.
- SHEFFIELD ROYAL HOSPITAL.**—Female Assistant House Surgeon and Female Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.
- SHEFFIELD ROYAL INFIRMARY.**—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.
- SHERWSBURY, ROYAL SALOP INFIRMARY.**—House Physician. Salary at rate of £110 per annum, with board and apartments.
- SOUTH AFRICA, PRERE HOSPITAL, East London.**—Resident Medical Officer, unmarried. Salary £300 per annum, with board, lodging, and washing.
- SOUTH LONDON HOSPITAL FOR WOMEN.**—Female Assistant Physician.
- SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTON DISPENSARY.**—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.
- STOCKPORT INFIRMARY.**—Junior House Surgeon. Salary £100 per annum, with board, washing, and residence.
- SUNDERLAND ROYAL INFIRMARY, CHILDREN'S HOSPITAL.**—Female Resident Medical Officer for six months. Salary £100 per annum, with board, residence, and laundry.
- SWANSEA UNION INSTITUTION.**—Resident Assistant Medical Officer. Salary £295 per annum.
- TAUNTON AND SOMERSET HOSPITAL, Taunton.**—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.
- TRURO, ROYAL CORNWALL INFIRMARY.**—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.
- VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.**—House Physician and House Surgeon for six months. Salary £40 each, with board and lodging.
- WAKEFIELD CLAYTON HOSPITAL.**—Female Junior House Surgeon. Salary £120 per annum, all found.
- WARRINGTON INFIRMARY AND DISPENSARY.**—Senior House Surgeon. Salary at rate of £200 per annum, with board, apartments, and laundry.
- WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.**—Locum Tenens Medical Officer, unmarried. Salary 6 guineas per week, with apartments, board, attendance, and washing.
- WARWICK COUNTY LUNATIC ASYLUM.**—Temporary Assistant Medical Officer. Salary £6 6s. per week, with board, &c.
- WEI-HAI-WEI COLONY.**—Medical Officer. Salary £300 per annum, with free unfurnished quarters, &c.
- WEST BROMWICH AND DISTRICT HOSPITAL.**—House Surgeon and Assistant House Surgeon, unmarried. Salary £150 and £120 per annum respectively, with residence, board, and laundry.
- WESTMINSTER HOSPITAL, S.W.**—Qualified Medical Men who are able and willing to do so to volunteer their help.
- WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.**—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST RIDING OF YORKSHIRE, CARDIGAN SANATORIUM, near Wakefield.
—Assistant Medical Officer. Salary £300 per annum, with partial board.

WEST RIDING OF THE COUNTY OF YORK, SCALEBOR PARK ASYLUM, Burley-in-Wharfedale.—Assistant Medical Officer. Salary £250 per annum, with rooms, board, attendance, and washing. Or Locum Tenens. Salary £5 5s. per week.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £150 per annum, with board, lodging, and attendance.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

YORK DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Downpatrick, County Down; at Enniskillen, County Fermanagh; and at Milford, in the county of Hampshire.

Births, Marriages, and Deaths.

BIRTHS.

CAMERON.—On Feb. 17th, at St. Thomas's-street, S.E., the wife of H. C. Cameron, M.D., a daughter.

HUSSEY.—On Feb. 19th, at Castle-street, Farnham, Surrey, the wife of James Hussey, M.D., of a daughter.

MARRIAGES.

PITT—WATKINS.—On Feb. 11th, at St. Peter's Church, Earley, Berks, Robert Cecil Pitt, M.R.C.S., L.R.C.P., to Beatrice Irene, only daughter of Mr. and Mrs. Alric Watkins, of The Traddock, Austwick, Yorkshire.

DEATHS.

FOGERTY.—On Feb. 14th, at George-street, Limerick, George Joseph Fogerty, Staff Surgeon, R.N.

HARPER.—On Feb. 16th, at Batheaston, Charles Harper, M.R.C.S., L.R.C.P., late Surgeon R.N., aged 87 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B., ET FILS, Paris.
La Pratique Hélio-thérapeutique. Par le Dr. Jaubert. Price Fr.1.50. Le Traitement des Anémies. Par les Docteurs H. Vaquez et Ch. Aubertin. Price Fr.1.50.

BAILLIÈRE, TINDALL, AND COX, London.
A System of Veterinary Medicine. By Various Writers. Edited by E. Wallis Hoare, F.R.C.V.S. Vol. II.: General Diseases. Price £2 10s. net, complete in two volumes.

CATHOLIC SUMMER SCHOOL PRESS, New York.
The Century of Columbus. By James J. Walsh, K.C.St.G., M.D., Ph.D., LL.D., &c. Price \$3.50, post paid.

CHURCHILL, J. AND A., London.
Morris's Human Anatomy: A Complete Systematic Treatise by English and American Authors. Edited by C. M. Jackson, M.S., M.D. Fifth edition, revised and largely rewritten. Price 30s. net.

DORNAN, W. J., Philadelphia.
Transactions of the American Gynaecological Society. Vol. XXXIX. 1914. Southern Surgical and Gynaecological Association, U.S.A. Transactions. Vol. XXVI. 1913. Edited by W. D. Haggard, M.D.

FORD AND SON, Melbourne.
University of Melbourne Medical School Jubilee, 1914.

LIBRAIRIE HACHETTE ET CIE, Paris and London.
Vade-Mecum for the Use of Officers and Interpreters in the Present Campaign. French and English Technical and Military Terms. By Eugène Pulmon. New and revised edition. Price Fr.2.

LONGMANS, GREEN, AND CO., London.
Quain's Elements of Anatomy. Vol. IV., Part I.: Osteology and Arthrology. By T. H. Bryce. Eleventh edition. Price 12s. 6d. net.

POOR LAW PUBLICATIONS COMPANY, Fumival street, London, E.C.
Modern Medical and Surgical Nursing for Probationers (Selected Lectures). By C. Seymour Yapp, Matron, Poor-law Hospital, Ashton-under-Lyne.

PUTNAM'S SONS, G. P., New York and London.
Dynamic Evolution: A Study of the Causes of Evolution and Degeneracy. By Casper L. Redfield. Price 6s. net.
A Medical Dictionary for Nurses. By Amy E. Pope. Price 3s. 6d. net.

SMITH, ELDER, AND CO., London.
Early Diagnosis of Heart Failure and other Essays on the Heart and Circulation. By T. Stacey Wilson, M.D. Edin., F.R.C.P. Lond., Senior Physician, General Hospital, Birmingham. Price 12s. 6d. net.

UNIVERSITY PRESS, Cambridge.
The Determination of Sex. By L. Doncaster, Sc.D. Price 7s. 6d. net.
An Introduction to the Study of Colour Vision. By J. Herbert Parsons, D.Sc., F.R.C.S., Ophthalmic Surgeon, University College Hospital; Surgeon, Royal London Ophthalmic Hospital. Price 12s. 6d. net.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.
Air, Water, and Food from a Sanitary Standpoint. By Alpheus G. Woodman and John F. Norton. Fourth edition, revised. Price 8s. 6d. net.

Notes, Short Comments, and Answers to Correspondents.

"OF GOOD REPORT."

DURING the past week a number of medical men in different parts of England have forwarded for our information copies of a circular letter and enclosures which they have received through the post from the secretary of Winox, Ltd., 66, London Wall, E.C. The object of these communications is to bring the claims of "Winox Wine Food" before members of the medical profession. The secretary's letter begins as follows:—

In requesting you to read the enclosed Clinical Reports we feel we are only asking what is due to you, to us, and to your patients, especially those recovering from wounds, operations, or sickness resulting from the War.

And concludes thus:—

We ask you to give "Winox Wine Food" a trial, and are willing to pay you three guineas for a report on the results in three or more cases. We do not require or expect that all these trials will be entirely favourable "Winox" is no "panacea" but from the reports we send you we feel confident that a very large majority of such trials must be satisfactory, and on these grounds will pay for all without distinction. Will you let us know how many bottles we may send you for the purpose of this investigation?

The enclosures consist of a postcard, to be filled in by the medical man, asking for samples of the preparation and agreeing to test and report upon them; a pamphlet entitled "20 Clinical Reports on Winox Wine Food" and marked "not for general publication," and an additional signed report by a medical man, describing himself as "Civilian Surgeon, R.A.M.C., &c.," upon three wounded soldiers from the front who each made a good recovery after the administration of this substance. The pamphlet contains 20 signed letters from medical practitioners testifying to the value of Winox Wine Food, and after each signature is printed an extract from the Medical Directory, 1914, while the last two pages contain appreciations from nurses and from members of the public. With the scientific value or otherwise of these testimonials we are not here concerned, but the distribution of them to other practitioners, in conjunction with an offer of 3 guineas each for further reports, is serious. The proprietors of Winox, by the wording of their secretary's letter, have no doubt protected themselves against a direct charge of bribery, and we do not suggest that the proffered fee would be withheld in the event of an adverse report. But we regard the procedure as a most undesirable innovation in methods of advertisement, while the medical men whose reports accompany the circular are inviting, and indeed receiving, unfavourable comment from their professional brethren. They should at once make their position clear. Have they, or any of them, had the fee for their reports?

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—Perhaps one of your readers could help me. I want to find a home for a girl who is weak mentally and a kleptomaniac. She is not certifiable. Her parents could pay about £1 per week. I am quite out of touch with these matters, and I know people have occasionally obtained valuable help from your correspondents.

I am, Sir, yours faithfully,

Feb. 16th, 1915.

C. A. J.

THE NATIONAL LEAGUE FOR PHYSICAL EDUCATION AND DEVELOPMENT.

THIS league, which is now amalgamated with the Mansion House Council on Health and Housing, in its ninth annual report for the year ending October, 1914, shows that considerable gain in efficiency has been made and overlapping reduced by its coöperation with many other bodies having allied aims—the National Association for the Prevention of Infant Mortality, the National Society of Day Nurseries (which gained for the latter recognition of the Board of Education and State financial aid), the Child Welfare Bureau of the Social Welfare Association, the Voluntary Central Health Committee for London, and many others. The report this year omits the branch reports on economic grounds, but it contains that of the Mansion House Committee on Health and Housing. Last year's comprehensive report on school clinics at home and abroad has led to a large increase in these institutions during the past year. A separate included report is that of the Association of Infant Consultations and Schools for Mothers, the list of affiliated societies of which occupies nearly three pages of small type. Its

report, which is signed by Dr. Eric Pritchard as chairman, and the Hon. Eleanor Ritchie as honorary secretary, shows the work done in mothercraft competitions and in other ways. There are some excellent leaflets and pamphlets published by the league, among which may be specially mentioned Hints on the Management of Children from 1 to 5 Years of Age, and a telling poster illustrating in three pictures a bad way, a better way, and the best way of feeding infants. As to more important publications, the excellent little book entitled "Mothercraft" was reviewed in THE LANCET, Feb. 13th, 1915, p. 333.

The address of the league, which has on its council Sir Clifford Allbutt, Sir William Osler, Sir Lauder Brunton, Sir John Tweedy, Sir Rickman Godlee, with many other representative members of the medical profession, is 4, Tavistock-square, London, W.C.

CENTIGRADE INTO FAHRENHEIT.

To the Editor of THE LANCET.

SIR,—Having experienced some difficulty in converting Centigrade degrees into Fahrenheit, I have solved the question, personally, by a simple plan. Centigrade 0° equals Fahrenheit 32°, freezing point. Each degree of Centigrade upwards requires an addition of 1.8° Fahrenheit. Taking, for example, 20° Centigrade, the equivalent of Fahrenheit is found by multiplying the 20° Centigrade by 1.8° Fahrenheit. This gives 36° Fahrenheit. Add to this the starting-point, 32° Fahrenheit, the result is 68° Fahrenheit. In the minus scale of Centigrade the 1.8° Fahrenheit is deducted. Example: —15° Centigrade requires 15 times 1.8° Fahrenheit, equals 27°. Deduct this from 32° Fahrenheit and the result is +5° Fahrenheit.

There are only two factors to be remembered, that 0° Centigrade is equivalent to 32° Fahrenheit, and that each degree of Centigrade requires 1.8° of Fahrenheit to be added or deducted as the plus or minus scale is applied.

I am, Sir, yours faithfully,

Feb. 23rd, 1915.

QUATORZE, M.D.

FIRES DUE TO AIR RAIDS.

THE British Fire Prevention Committee has issued a circular containing some useful directions as to what to do in the event of a fire breaking out due to an air raid. The precautions enjoined are for the most part applicable to outbreaks of fire from other causes, and are such as would be adopted by sensible persons in any case. Free copies of the circular may be had by applying to the offices of the committee, 8, Waterloo-place, Pall Mall, London, S.W.

WEIGHT AND MEASUREMENTS OF GERMAN SOLDIERS.

A CORRESPONDENT writing on the physical measurements of soldiers points out that the average weights and heights of German adult men who in time of peace were considered fit for military service by the army medical authorities were as follows: average height, 166 cm. (5 ft. 5.3 in.); average weight, 65 kg. (10 st. 3.3 lb.); chest measurement, taken with the arms evenly extended, close under the nipples in front and close under the angles of the shoulder-blades behind, average inspiration, 89 cm. (35 in.), and average expiration, 82 cm. (32.3 in.), showing a maximum difference between inspiration and expiration of 7 cm. (2.7 in.); girth, taken 1 cm. above the umbilicus, 75 cm. (29.5 in.). It might be interesting to know how far these standards are being maintained at the present time among the new levies for the German army.

A SUSSEX MEDICAL MAN'S GOLDEN WEDDING.

Dr. G. A. Jeffery and Mrs. Jeffery, of Hailsham, celebrated their golden wedding on Feb. 21st, and received numerous messages of congratulation. The marriage ceremony took place at Upper Clapton, and of the six bridesmaids no fewer than five are still living. A Cornishman by birth, Dr. Jeffery has resided in Sussex for 60 years, and for half a century practised at Eastbourne, where he also held a number of public appointments. On relinquishing work, Dr. Jeffery removed to Hailsham, not far from Eastbourne, and despite his great age—he is in his 91st year—is able to continue his active interest in local affairs. He is an alderman and justice of the peace for East Sussex.

RUBBER HEELS.

M. S.—There is, we believe, no evidence available of any connexion between the use of hard leather-heeled boots and diseases of the spinal column or nervous system, despite the unnaturally hard surfaces on which millions of us spend our lives. The central nervous system is so jealously guarded by muscles, intervertebral discs and cerebro-spinal fluid, and meninges and ligaments, that it habitually withstands far greater shocks than hard heels are capable of inflicting. The joints and bones of the skeleton are also protected by muscles, cartilages, and ligaments. It is, however, conceivable that boot heels of soft material may be of service in softening jars to inflamed joints—in chronic

arthritis, for instance; but the end is better secured by placing a layer of spongy indiarubber inside the boot rather than outside. What H. J. Byron called "the midnight footfall of the peeler on his beat" is no doubt usefully muffled by indiarubber heels and soles.

F. H. B.—In Continental States, where the metric system is now generally adopted for the dispensing and preparing of medicines, all liquids are weighed, and the terms gramme, centigramme, and kilogramme only are used. This avoids the possibility of errors, which the similarity of the names decagramme and decigramme might lead to.

Falstaff.—Honey contains approximately 70 per cent. of the sugars known as levulose and dextrose in about equal proportions. Fruits contain the same sugars, but in smaller proportion.

R. H.—It is most unsatisfactory to advise without examination. We should suggest varying the sulphate of magnesia by prescribing 3 ss. of pure petroleum every night.

Radium.—There is no scientific reason why a water of permanent radio-activity should not be prepared.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Prof. W. A. Bone, Prof. H. L. Callendar, and Mr. H. J. Yates: A Bolometric Method of Determining the Efficiency of Radiating Bodies.—Mr. E. Chappell: The Simplification of the Arithmetical Processes of Involvement and Evolution (communicated by Prof. W. B. Dalby).—Mr. F. E. Rowett: The Elastic Properties of Steel at Moderately High Temperatures (communicated by Prof. B. Hopkinson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY.

SECTION OF OPHTHALMOLOGY (Hon. Secretaries—Leslie Paton, Elmore W. Brewerton): at 8.30 p.m.

Cases (at 8 p.m.)

Papers:

Mr. Leslie Paton: The Montessori System and its Use for Children with Defective Sight.

Mr. Bishop Harman: The Education of Children with Defective Vision.

Mr. J. H. Fisher: Retinitis in Pregnancy.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.—The Members of this Section are specially invited to attend the discussion on the first two papers at the meeting of the Section of Ophthalmology. (See above.)

THURSDAY.

SECTION OF BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—Charles W. Buckley, J. Campbell McClure): at 5.30 p.m.

Paper:

Dr. Leonard Williams: The Teutonic Health Resorts and their Substitutes.

NOTE.—Members of other Sections are invited.

SECTION OF MEDICINE.—Members of the Section of Medicine are specially invited to attend the meeting of the Section of Balneology and Climatology. (See above.)

SECTION OF SURGERY.—Members of the Section of Surgery are specially invited to attend the meeting of the Section of Balneology and Climatology. (See above.)

FRIDAY.

SECTION OF LARYNGOLOGY (Hon. Secretaries—Cecil I. Graham, W. D. Harmer): at 4 p.m.

Cases and Specimens:

Will be shown by the following:—Dr. William Hill, Mr. Secombe Hett, Sir William Milligan, Mr. Cecil Graham.

Dr. Pegler: Specimens of Superior Maxilla, illustrating Abnormal Antra and Nasal Fosse.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Cecil Hughes, F. B. Shipway): at 8.30 p.m.

Discussion:

On the Influence of Preliminary Narcotics on the (a) Induction, (b) Maintenance, (c) After-results of Anæsthesia (to be opened by Dr. J. Blumfeld).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 p.m., Paper:—On the Outbreak of Toxic Jaundice of a New Type among Aeroplane Workers—(a) Clinical and Toxicological Portion by Dr. W. H. Wilcox, (b) Pathological Portion by Dr. B. H. Spilsbury, (c) Industrial Aspects by Dr. T. M. Legge.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 p.m., General Meeting. Paper:—Mr. A. Fleck: The Chemistry of the Radio Elements.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 p.m., Clinical Meeting.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, Society's Rooms, West London Hospital, Hammersmith-road, W.

FRIDAY.—8.30 p.m., Paper:—Dr. R. Morton: The X Ray Appearances of Some Common Disorders of the Stomach (with lantern slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, WEDNESDAY, AND FRIDAY.—5 P.M., Hunterian Lectures:—Prof. A. Keith: The Anatomy and Mechanism of the Alimentary Canal. (Illustrated by specimens from the Museum of the College and by the use of the epidiascope.) (Lectures IV., V., and VI.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. E. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics.—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipple). Gynaecological (Dr. J. B. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Operations. Clinics.—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Rays and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Special Lecture:—Mr. T. H. C. Beulans: The Diagnosis of Disease by Clinico-pathological Methods (with illustrative cases).

WEDNESDAY.—Clinics.—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipple); Skin (Dr. G. N. Meschen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynaecological Operations (Dr. A. E. Giles). Clinics.—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).

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THURSDAY.—5.15 P.M., Clinical Lecture.

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TUESDAY.—4 P.M., Dr. C. R. Kempster: X Rays. Rodent Ulcer.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Common Hypertrophies.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Dr. D. E. Core: Parasyphilis.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 24th, 1915.

Date.	Barometer reduced to Sea Level and 32°F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 18	29.34	S.W.	0.29	77	51	44	46	48	Raining
" 19	29.08	S.W.	0.11	75	49	44	43	45	Raining
" 20	29.13	S.W.	...	77	48	41	40	41	Cloudy
" 21	29.29	S.W.	...	77	47	34	35	36	Fine
" 22	29.18	S.W.	0.10	50	43	34	38	39	Cloudy
" 23	29.55	N.W.	0.25	78	42	36	34	36	Cloudy
" 24	29.98	N.	...	54	38	33	32	34	Cloudy

The following magazines, journals, &c., have been received:—American Journal of Obstetrics, Journal of Obstetrics and Gynaecology of the British Empire, Canadian Journal of Medicine and Surgery, British Dental Journal, American Medicine, Albany Medical Annals, Journal of Tropical Medicine and Hygiene, Dominion Medical Monthly, Medical Review of Reviews, Annales Gynécologie et d'Obstétrique, Canadian Practitioner and Review, Archives of Pediatrics, &c.

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Hunterian Lecture

ON

THE OPERATIVE TREATMENT OF CLEFT PALATE.

Delivered before the Royal College of Surgeons of England on Feb. 17th, 1915.

By H. BLAKEWAY, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR AT THE COLLEGE; SURGICAL REGISTRAR, ST. BARTHOLOMEW'S HOSPITAL; SURGEON, WITH CHARGE OF OUT-PATIENTS, VICTORIA HOSPITAL FOR CHILDREN; ACTING ASSISTANT SURGEON, ROYAL FREE HOSPITAL.

MR. PRESIDENT, LADIES AND GENTLEMEN,—My first duty is to express my thanks for the privilege of addressing you to-day; and this I do, esteeming this Hunterian professorship not only as an honour but also as a responsibility the extent of which may be gauged by reference both to the conditions of its foundation and to the fame of those who have in former times sustained it.

INTRODUCTION.

The subject of the treatment of cleft palate has been during recent years the occasion of hot dispute; such a condition of things reveals a dissatisfaction with existing modes of treatment, and an inability on the part of the practitioners of any one form of operation to show it as certainly superior to other methods.

Convinced as I am of the necessity of knowledge as to the results of treatment, much of this lecture will be devoted to discussion of this part of the subject: a part which could not have been investigated at all without the help of those who have so generously allowed me to record the results of their operations. To all these gentlemen I tender my most grateful thanks.

THE OPERATION OF "MEDIAN SUTURE."

Historical.

The operative treatment of cleft palate is 150 years old. It is said that Le Monnier sutured with success a complete fissure of the palate as early as 1764 (he has himself left no record of the operation, but the account given by Robert¹ is sufficiently circumstantial), and that in 1816 von Graefe cured a cleft of the soft palate, while Ebel operated unsuccessfully a year later.² Roux's famous first staphylorrhaphy occurred in 1819,³ and a few years later Warren, of Boston, independently performed the operation with success.⁴

In this country Fergusson in 1844⁵ was the first deliberately to base his operation upon anatomical foundations. With the advantage gained by a dissection of the muscles of a cleft palate in an adult he successfully divided certain of those muscles so as temporarily to relieve the halves of the palate from their traction. His method was immediately adopted by others.

About this time clefts of the hard palate also began to be attacked by operation. Dieffenbach in 1834⁶ appears to have been the first to separate the soft parts from the underlying bone, and drawing them inwards, to suture them in the middle line. Mason Warren⁷ in America used the same plan, which was tried in England by Fergusson⁸ and by Pollock.⁹ These surgeons probably used the whole thickness of the soft parts to form their flaps, though they seem to have been under the impression that the mucous membrane only was detached. No. 4775.

Warren specially mentions that the mucosa is rather peeled than dissected off; and the mucoperiosteum is an indivisible structure, without distinction of mucous and submucous layers.

By the middle of the last century, therefore, were already known and practised most of the steps of the operation of median suture nearly as we see it to-day. It was left to Langenbeck¹⁰ in 1862 to raise flaps in which the periosteum was deliberately included, to collect the scattered writings of Europe and America, and to describe in consecutive detail the steps of an operation which has since borne his name. His paper marks an epoch in the history of the surgery of cleft palate.

The operation as now performed differs in only two essentials from Langenbeck's practice—it is performed at a much earlier age, and almost always with the aid of a general anaesthetic. For both of these advances we are indebted to the late Sir Thomas Smith,¹¹ who urged in 1868 that the operation should be done, if possible, before the patient learns to speak, and who advocated the use of chloroform as the anaesthetic.

Such, briefly, is the history of Langenbeck's operation; if the details of its performance have varied the principles upon which it is based are the same, and the results of Fergusson and of Smith remain still admirable as examples of the best that can be obtained.

Results.

I propose now to describe the results of the operation in the hands of different surgeons.

Langenbeck¹² gives us details of his first 21 cases of congenital cleft palate, operated upon at ages varying from 7 to 29½ years. The results were as follows:—

(a) Among 14 cases of complete cleft of hard and soft palates 10 resulted in complete closure and only one was a complete failure. The effect upon the speech is noted in 9 of the cases in which complete closure occurred; the note varies from "slight improvement" to "perfectly distinct."

(b) Among 6 cases of cleft of the soft and part of the hard palate, complete closure resulted in 5 and incomplete closure in 1. Here the condition of the speech after operation was only noted in 1 case; it was "intelligible," having been completely unintelligible before the operation.

(c) In 1 case of cleft due to congenital absence of the left intermaxilla, complete closure was attained.

Most of these cases were operated upon more than once, closure of the soft palate being first attempted, and later that of the hard.

Sir Thomas Smith¹³ published the results of 51 cases treated by him; in any comparison of these results with those of other operators it must be borne in mind that very many of his cases were operated upon at an age much earlier than that at which the operation had previously been considered practicable; moreover, they were some of his earliest cases. The ages of these 51 patients varied from 2 to 29 years. The results were:—

(a) In 18 cases of complete cleft, complete closure occurred in 7, partial closure in 8, and complete failure in 3.

(b) In 27 cases of cleft of the soft and part of the hard palate, there resulted complete closure in 8, partial closure in 16, and failure in 3 instances.

(c) Complete closure was obtained in all of 6 cases of cleft of the soft palate only.

The effect upon the speech is noted in 7 cases only; in all of these the articulation was much improved.

Coming to more recent times the most important contribution to our knowledge has been made by Mr. Berry.¹⁴ The great value of his series of 154 cases depends upon the fact that not only is the immediate result of the operation given, but, with

20 exceptions, the patients have been traced, and the condition of the palate and of the speech noted at intervals varying up to 15 years after operation. It is worthy of attention, in view of the suggestion sometimes made that those who perform Langenbeck's operation do not see the worst cases of cleft palate, that only 31 of these cases presented a cleft of the soft palate alone, while in 60 the cleft was complete.

As regards closure of the cleft the results may be summarised as follows: Of the cases of complete cleft 73 per cent. obtained complete union, and none were utter failures; where the cleft involved the soft and a part of the hard palate, once again the percentage of cases of complete closure was 73, while the percentage of failures was only 3·4; lastly, in cases of cleft of the soft palate only, 87 per cent. were completely healed and 3·2 per cent. failed. The majority of these patients were operated upon only once. Many of them had previously undergone unsuccessful operations by other surgeons.

Table I. shows the results as regards the function of speech in all the cases in which a note of the effect upon the speech was made: it should be observed that by far the greater number of the cases reported were hospital patients, who received after the operation no skilled training in articulation. In arranging the table account has been taken, not only of the original extent of the cleft, but also of the age at which the first operation was performed.

TABLE I.—Classification of Speech of Patients in Dr. Berry's Series of 154 Cases (Langenbeck's Operation).

Age at which first operation performed	Good.			Fair.			Bad.		
	2 and under.	2-8 years.	Over 8 years.	2 and under.	2-8 years.	Over 8 years.	2 and under.	2-8 years.	Over 8 years.
Complete cleft... ..	5	12*	7	—	12†	2	—	5†	—
Cleft of soft and part of hard palate	1	10	11	2	15	5	—	2†	2
Cleft of soft palate... ..	3	6	—	—	6†	2	1	3†	—

* Three of these patients received careful training.
† These include several mentally deficient children.

In spite, therefore, of the disadvantage of lack of training good articulation was obtained in a large proportion of the cases. It is to be noted that of the patients under 2 years of age at the time of operation nearly all appear in the "good" column (a result partly attributable to the fact that early operations would be more likely to be performed upon the slighter cases of the deformity); on the other hand, it is evident that the prognosis as regards speech, in those cases in which the patient is not brought for operation until after he has acquired faulty habits of articulation, is not nearly so hopeless as is frequently stated.

Admirable as these results are, they have been objected to on the ground that they can only be achieved by very few possessed either of special skill or of great experience in the performance of the operation. I believe it to be true that the result of the operation depends more upon the individual skill of the surgeon than upon any other factor in the treatment; this individual skill consists neither in great manual dexterity nor in having performed large numbers of operations for cleft palate, but is in great part acquired by a careful preliminary study of the details of the operation and especially by watching its performance in the hands of those who are accustomed to it.

I have recorded elsewhere¹⁵ a series of what may be regarded as average results, obtained in 200 cases treated at St. Bartholomew's Hospital. Complete union was obtained in 31 per cent. of complete clefts, 57 per cent. of clefts involving only a part of the hard palate, and 69 per cent. of clefts of the soft palate.

Table II. shows the results of my own cases operated upon by Langenbeck's method; they are only 11 in number, but they illustrate the same point, that a considerable degree of success may be reached, without large personal experience, by

TABLE II.—Eleven Cases of Cleft Palate treated by Langenbeck's Operation.

No.	Sex and age.	Extent of cleft.	Operations.	Result.	Remarks.
1	F., 3	Complete; left harelip cured.	9/10/1911	Death under anæsthetic.	P.M. status lymphaticus.
2	F., 12	Soft, and half of hard palate.	26/10/1911	Posterior 2 inch healed.	Pyorrhœa alveolaris.
3	M., 15	Complete; left harelip cured.	13/11/1911 27/11/1911	Failed. Complete closure.	Secondary hæmorrhage 13th day. Pleurisy on 14th day.
4	M., 2	Complete; left harelip cured.	20/11/1912	Complete closure.	Small hole, left immediately after operation, closed spontaneously.
5	F., 14	Soft, and half of hard palate.	13/7/1914	Complete closure.	—
6	F., 13/12	Soft palate.	19/8/1914	Complete closure.	Previous operation at 6 months had failed.
7	F., 2 10/12	Complete; right harelip imperfectly cured.	24/8/1914	Complete closure.	Operation for improvement of lip, Sept. 16th.
8	F., 5	Soft, and greater part of hard.	31/8/1914	A hole, 5 mm. wide, at junction of hard and soft palates.	Previous unsuccessful operation at 4 years.
9	F., 1 1/2	Complete; left harelip cured.	23/9/1914	Failure.	Very wide cleft; anterior part could not be closed.
10	F., 2	Soft, and half of hard palate.	7/10/1914 6/1/1915	Hard palate only healed. Tiny hole in soft palate.	Bronchitis after second operation.
11	F., 5	Soft palate.	28/10/1914	Complete closure.	Previous unsuccessful operation at 18 months.

studying the methods of others. The first patient died under the anæsthetic when the operation had only been begun; of the remaining 10 cases, complete closure of the cleft was obtained after one operation in 6, 3 of which were cases of complete cleft. One case (No. 9) resulted in complete failure; the cleft was complete and very wide, extending forwards through the alveolar arch. This anterior part of the cleft could not be closed at the operation. Probably it would have been wiser to have waited longer before operating. In Case 2 I operated unwisely in the presence of pyorrhœa alveolaris; the wound suppurated, and only a small part of it united. An attempt a fortnight later to bring the edges together and to obtain union by granulation also failed.

THE "TURN-OVER FLAP" OPERATION.

I come next to the consideration of the turn-over flap operation, now known by the name of Sir Arbuthnot Lane. It differs radically from Langenbeck's method in that one, at any rate, of the

flaps raised from the oral surface of the palate is turned over like the page of a book, remaining attached along the edge of the cleft. The raw surface of the flap now looks downwards towards the mouth, and the mucous-membrane-covered surface upwards to the nasal cavity. In the case of the hard palate the flap consists of all the soft tissues, including the periosteum; its free edge is drawn under the muco-periosteum at the opposite side of the cleft, raised up from the bone for the purpose. In the region of the soft palate the flap includes only mucous membrane and submucous tissue, and is in part covered by a second flap turned across from the nasal surface of the opposite half of the velum.

History.

Flap operations more or less resembling this have been performed at various times since 1824, when Krimer³ operated in the case of a girl, aged 18, upon a cleft involving the soft and most of the hard palate; the greatest breadth of the cleft was nearly an inch. Two similar flaps were raised from the tissues upon either side of the cleft and were turned over towards the middle line and their edges sutured together, the raw surfaces of the flaps looking downwards into the mouth. Complete healing is said to have resulted. The after-history of the patient was not traced. Langenbeck met with no success in 2 cases in which he employed this operation. Nélaton and Blandin¹⁶ tried in the case of cleft of the soft palate procedures allied to the method of Sir Arbuthnot Lane. The former, having turned over a flap from one side of the cleft, comprising half the thickness of the soft palate, partly covered the raw surface of the flap by paring the opposite edge of the cleft in a bevelled fashion. The latter fashioned a flap from each side of the cleft and sutured the two flaps together.

In more recent years Davies-Colley¹⁷ devised a method in which hinged flaps sutured together had their raw surfaces covered by another flap slid over them from one of the sides of the palate.

It is not my intention to discuss any of these flap operations other than that advocated by Sir Arbuthnot Lane. Davies-Colley's method was not intended by its author for general use, and it is at the present time used by very few surgeons; and the other operations are now never performed.

Advantages Claimed for the Flap Operation.

It is necessary before recording the results of Lane's operation, which I propose to bring before you, to enumerate the claims that have been made in support of this method, and to see to what extent these claims have been made good. The chief of the advantages claimed for the method is the early age at which the operation can be performed: the day after birth is stated to be the most suitable time.¹⁸ Those who advocate operation in early infancy are as a rule supporters of the flap method, if for no other reason because Langenbeck's operation cannot, as a rule, be performed in the first weeks of life, whereas the flap method can be utilised, even at this early period, to close clefts of almost any width. It is even sometimes suggested that the worst cases of cleft palate cannot be successfully treated by any other operation.

Most of the other advantages claimed for the flap operation are stated to result from the possibility of performing it in early infancy. In the first place

the operation is said to be "life-saving." The originator of the method said as follows:—

Surgeons were satisfied to operate on but a very small proportion of the cases of bad cleft palate, since only a fraction of the number of such cases survived to the age at which the operation they recommended was performed—namely, four to six years. They did not seem to realise that the closing of the cleft in the hard palate was an operation of urgency in severe cases, and that it was a condition that called for immediate interference in order to save the life of the child.¹⁹

The belief that the flap operation is "life-saving" depends upon three minor beliefs: (1) that the mortality among children with bad cleft palate depends upon the fact that the infant cannot be fed; (2) that the successful performance of the operation makes feeding possible; and (3) that the mortality of the operative treatment is less than that among infants suffering with untreated cleft palate.

The first of these cannot be regarded as proved. There can be no doubt that many infants born with cleft palate do die of inanition, but it is likely that most of these deaths result either from unsuitable quality of the food or from ignorance of the means by which it should be given. The late Sir Thomas Smith stated that in newly born infants with cleft palate, with hare-lip, or with both, and in other respects healthy, he had never failed to secure a plentiful administration of nourishment.

Of course, if the condition of bad cleft palate does not make feeding impossible, then the second of the above-mentioned propositions loses its significance. A child with a cleft palate, however extensive, can swallow in normal fashion, and can therefore be made to take food by artificial means; a successful operation might enable it to take the breast, but it seems almost certain that by the time the wound in the palate is sufficiently healed to enable this method of feeding to be tried, the mother would no longer be able to feed the infant.

What is the mortality among infants with untreated cleft palates? The question will not be settled until definite figures are available, and in their absence it is evident that early operation for cleft palate ought not to be claimed to be a life-saving measure. It may even be, as has been suggested, that it is the reverse of life-saving, if the mortality of the operation itself is a high one.

Published Results.

The figures as to the death-rate of the operation differ in the experience of different surgeons.

The most important statistics available up to the present time are those given by Mr. Barrington-Ward²⁰ from cases treated at the Hospital for Sick Children, Great Ormond-street. Here, among 144 first operations on infants of 1 year of age and under, 18 resulted fatally—a mortality of 12.5 per cent. The mortality of secondary operations, as would be expected, is much less, though it cannot be exactly ascertained from the figures given.

Spencer²¹ refers to a series of 14 cases treated by Lane's method in early infancy; 4 of these had died. In 1 the death could not be attributed to the operation; of the other 3, 2 died from pneumonia, respectively 14 and 21 days after discharge, and the third from recurrent hæmorrhage.

Fagge²² states that of 38 infants under 1 year of age at the time of their first operation, "1 died during the palate operation and 2 died in hospital, but the remote mortality was much more alarming, for an effort to trace these patients by correspondence showed that 14 others had died from various causes, of which 6 were directly or indirectly due to subsequent operations for hare-lip." It is not definitely stated that all these cases were treated by the flap operation.

Goyder²⁴ records a series of 26 cases operated upon by Lane's method. Of the cases 13 were children up to 14 months old; of these infants, 1 died, as also 1 of the older cases. Many of the patients had the operation repeated more than once.

I recently had the opportunity of tracing the results at intervals after operation of from 6 months to 3½ years in 17 cases treated by this operation by Mr. Richard Warren. The ages of the patients at the time of the first operation varied from 12 days to 5 years, 11 of the children being under the age of 12 months. There were no deaths attributable to the operation.

All these results do not allow us to form final conclusions as to the question of mortality. It is unfortunate that Barrington-Ward's figures apparently only relate to cases dying whilst in hospital, whereas some of the other statistics show that deaths (some of which are attributable to the operation) may occur after the infants have returned home.

A factor which is certainly of great importance in determining the difference in the death-rate of the flap operation in the hands of different surgeons is the exercise or the non-exercise of selection among the cases. If early operation is regarded as necessary in all cases and as life-saving in ill-nourished infants no selection of cases will be made, and a series of cases treated in this way will show a mortality higher than would be the case if marasmic infants were looked upon as unfit subjects for operation.

If it be accepted that early closure of the cleft is of such great importance for preserving the life of the child, the claim that the early operation is life-saving depends, too, upon the prospect of closure of the cleft, especially in the bad cases. Up to the present it has been difficult to say, from any published statistics, what are the prospects that the cleft will be closed.

Goyder, in his series of 26 cases, obtained the following results:—

(a) Among 13 cases in infants up to 14 months:—

Complete closure after one or more operations	9
Partial closure	3
Failure (one operation only)	1

(b) Among 13 cases in patients over 14 months (7 of these patients were 12 years old or more):—

Complete closure after one or more operations	11
Partial closure	1
Failure (one operation only)	1

The value of these results is unfortunately lessened by the fear that some of them at any rate only represent what was achieved at the end of the operation—for example, 2 of the patients in whom "complete closure" was noted died, the one a month and the other only 20 minutes after the operation.

In the 17 cases already referred to, operated upon by Mr. Warren and traced by myself, the results were as follows:—

(a) In ten cases of complete cleft:—

Complete healing after one or more operations	3
Partial healing	7

In 1 case of complete healing and 1 of partial healing the result was taken from the hospital notes, the attempt to trace the patient having failed.

(b) In 7 cases of cleft of the soft and part of the hard palate:—

Complete healing after one or more operations	4
Partial healing	2
Complete failure after one operation	1

One of the two cases of partial closure was that of a child recently dead; the result is that given in the hospital notes.

The second great advantage that is stated to result from early operation is the more normal development of the palate and of the nose and nasopharynx in the early years of life, so that the

function of speech is likely to be better accomplished than in those in whom the operation has been deferred until a later date, even though in these latter the cleft may be closed before the child has learned to speak. The proof of this contention has been completely wanting. No large consecutive series of cases examined at a sufficient interval after operation has been published, and it seems fair to conclude from the published Proceedings that in the cases of the patients shown at a meeting of the Royal Society of Medicine in 1911, the alleged superiority of the flap operation was not shown.

I come to the last contention that has to be discussed—that there are cases of cleft palate which, on account of the great breadth of the cleft compared with that of the palatine tissue at the sides of it, can only be closed by a flap operation in early infancy, or by some attack upon the bones (such as the method of Brophy, to be mentioned later). The most direct reply to this statement has been made by Mr. Berry,²⁵ who has declared that he has never seen such a case, and that he would be grateful to anyone who would show him a case at the age of 2 or 3 years in which the cleft was too wide to be closed by a Langenbeck operation.

Evidently it is difficult for those who perform only the flap operation to advance direct proof of this claim in its favour. The suggestion has, however, often been made that a disproportionately large percentage of bad cases is met with by them, and available figures to some extent support this view. Barrington-Ward, for example, states that among 144 cases of cleft palate in infants operated on by Sir Arbuthnot Lane 53 per cent. showed complete clefts of both lip and palate; in 36 per cent. the hard palate, and in 11 per cent. the soft palate only was involved.

I have already mentioned that in Mr. Berry's series of 154 cases treated by Langenbeck's method, 60—i.e., 39 per cent.—were cases of complete cleft; and in 200 cases which I collected and which have been referred to the figures were as follows:—

Complete cleft of hard and soft palate	93 cases = 46.5 per cent.
Cleft of soft palate and part of hard	65 cases = 32.5 "
Cleft of soft palate only	42 cases = 21.0 "

In this series, therefore, the percentage of cases of complete cleft is not far short of that given by Mr. Barrington-Ward; and it is actually higher than the percentage in 100 cases operated upon by Sir Arbuthnot Lane, to be mentioned presently.

I have tried to review impartially such evidence as is available concerning the claims put forward on behalf of the flap operation. The evidence is remarkably little. The statement that the operation is life-saving has not been proved. That because of the overlapping of flaps and the absence of tension union is more easily secured than by the operation of median suture is suggested by Goyder's series of cases, but the series is a small one, and the details given are in several respects meagre. The suggestion that the worst cases of cleft palate can only be closed by a flap operation in early infancy is difficult of decision; it lacks proof, and it has been flatly denied by Mr. Berry, whose experience in the Langenbeck operation is probably second to none. Finally, the expectation that on account of the early age at which the operation can be done the speech will be much better than in cases where operation has been deferred to a later date has not yet, so far as can be shown, been realised.

(To be concluded.)

A CASE OF MULTIPLE PULSATING TUMOURS SECONDARY TO HYPERNEPHROMA.¹

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SEAMEN'S HOSPITAL, GREENWICH.

THE following case has many points of interest; these are—the nature of the primary tumour in the kidney, the occurrence of secondary growths, their pulsation, and the murmurs audible in them.

A sailor, aged 59, was admitted to the Seamen's Hospital, Greenwich, on Nov. 25th, 1907. He was found to have pulsating swellings of the right elbow, the right shoulder, and the right gluteal region, together with hæmaturia. The first occurrence of hæmaturia was in January, 1907, when it continued for three days. At first micturition was painful and clots of blood were passed, but with their passage the pain ceased. The urine continued to be bright red and the colour was evenly distributed. There was no pain shooting to the end of the penis and no pain in the loins or in the testes. The urine was then free from blood for two months. Hæmaturia again occurred; and every five or six weeks since then the patient had had similar attacks lasting two or three days. On Nov. 22nd the stream of urine was thought to be a little smaller, but no pain was felt. On the 24th, the day before admission, the patient was unable to pass urine until 1 P.M., when a few drops of blood-stained urine and clots were passed, and in the afternoon a large quantity of very dark urine. The swelling on the right buttock was first noticed 12 months ago, that on the elbow six months ago, while that on the shoulder had not been recognised, though the part was painful. Three weeks before the first occurrence of hæmaturia he had a fall on the right shoulder, elbow, and hip, and he had had frequent pains in these parts since that time. The pain in the right shoulder increased two days before admission.

The most obvious of the swellings was that involving the right elbow-joint; it was an elastic rounded swelling, and though affecting more the lower end of the humerus than the upper ends of the bones of the forearm it had very much the appearance of a moderately swollen joint. The movements, however, were not much limited, and both flexion and the radio-ulnar movements when carefully performed were not painful. The swelling was, however, tender to pressure, especially on its outer side, was soft and elastic, and pulsated distinctly. On auscultation a rather loud systolic bruit was heard. The right arm was wasted, but the muscle was capable of normal action. The tumour of the shoulder formed a rounded swelling of the acromial end of the clavicle and of the acromion itself, about 2 inches in diameter, and projecting above the normal level from $\frac{1}{2}$ to $\frac{3}{4}$ inch. It was soft, elastic, tender on pressure, and pulsating. A systolic murmur could be heard in it. The shoulder-joint was painful when moved.

The swelling of the right gluteal region was situated behind the trochanter, forming a flat elevation, projecting at its centre not more than 1 inch beyond the normal level of the skin. Its limits were difficult to define, but the pulsation associated with it could be traced upwards nearly to the iliac crest, backwards to the edge of the sacrum, and downwards to the level of the inner end of the trochanter. A systolic bruit was heard over this area. The right hip was painful on movement, and pressure behind the trochanter caused pain.

The course of the illness was uniformly downwards. The tumours gradually increased in size, and the patient became increasingly paler and weaker. The hæmaturia, however, was intermittent, and even for long periods absent. In January, 1908, he had pain in the left leg, but nothing could be detected to account for it. On March 1st the tumour of the shoulder extended, as estimated by the pulsation, from the spine of the scapula to just beneath the coracoid process, and measured 5 by 3½ inches. The tumour at the elbow was 5 inches in length and 10½ inches in circumference. The vertical extent of the gluteal tumour was as before, and antero-posteriorly it extended from the

anterior superior spine of the ilium to the tip of the coccyx. Blood was found at intervals in the urine, sufficient to colour it bright or deep red, and sometimes clots were passed. On these occasions strangury and pain at the end of the penis were present, but there was no pain in the loins. Beyond the presence of the blood-corpuscles and the corresponding albumin the examination of the urine was negative. In view of the presence of multiple growths in connexion with the bones, the urine was examined more than once for Bence Jones's protein. It was stated to be present on the first occasion, but subsequently it was never found, and I think the first observation must have been erroneous. The patient was pallid and wasted, looked much older than his age, and had the appearance of one suffering much pain. The lungs appeared to be normal. The heart's impulse was $\frac{1}{2}$ inch outside the nipple line; there was some accentuation of the second sound and a systolic murmur at the third left costal cartilage. Nothing was detected in the abdomen.

On June 16th the tumour of the elbow measured 11½ inches in circumference, that of the shoulder had increased to 6½ by 3½ inches, that of the right buttock to 10 by 9½ inches, and that of the left buttock to 3 by 4½ inches. The last two nearly met over the sacrum. Three weeks later a new pulsating area was discovered at the posterior extremity of the left iliac crest. On July 31st all the swellings were larger. The patient died on Sept. 18th, 1908.

The following account of the necropsy and the histological report are by Dr. Lucius Nicholls, then pathologist to the Seamen's Hospital, and now resident surgeon to the Victoria Hospital, St. Lucia, Windward Islands, W.I.:

Necropsy.—The body was that of an emaciated aged man. Four distinct hard swellings were visible upon the body surface; the first was a large oval swelling situated at the outer end of the clavicle; another was on the lower end of the humerus and involved the elbow-joint. The bone here was obviously fractured. The third and largest tumour was in the right gluteal region on the inner part of the iliac bone. The fourth was in the right lumbar region and appeared to involve the fourth and fifth lumbar vertebræ. These tumours were dissected out. The one on the outer end of the clavicle had caused fracture of that bone; it was 3 or 4 inches long and 2 inches broad, and it involved the upper border of the scapula. The growth on the lower end of the humerus was about the same size; it had also caused fracture of the bone and involved the upper ends of the radius and ulna. The gluteal tumour had involved the wing of the ilium and the adjacent half of the sacrum. This tumour was about 4 inches square. The sections of these tumours had the appearance of a lobulated structure, of a dark, mottled, bloody colour. This was due probably to extreme vascularity and hæmorrhages into the substance. Careful examination of the other skeletal structures revealed no further growths, and no bone broke on heavy manipulation.

The left kidney measured 5½ inches vertically. The upper third was occupied by a spherical tumour 2½ inches in diameter; it was lobulated and had a definite capsule. On section it presented hæmorrhagic areas. Throughout the rest of the kidney, except 1 inch at the lower pole, were scattered growths of the same kind, from the size of a pea to that of a filbert. The left suprarenal capsule contained a small separate tumour. The right kidney and suprarenal capsule were natural. The lungs were dry and silky, and contained numerous small nodules scattered through them, ranging from the size of a split pea to that of a small walnut. They could be easily shelled out. The cardiac valves were hard and sclerotic and the inner coat of the aorta was in an advanced stage of atheroma. The heart itself and the abdominal organs, other than the kidneys and suprarenal capsules, were normal and free from growths. The testes were normal.

Histological report.—The tumour is a so-called hypernephroma. In the present case the tumours are very degenerate, and much hæmorrhage has taken place into their substance. They have, however, the usual reticular appearance of hypernephromas, but the cells show badly and the nuclei are darkly stained. (The tumours of the kidney, humerus, scapula, and ilium, and histological sections, were shown at the meeting.)

¹ Read before the Section of Medicine of the Royal Society of Medicine.

There seems to be no doubt from the histological examination as well as from the character of the recurring growths that this case is one of those which have been called hypernephroma; but I am afraid that it contributes little to the discussion as to the origin of these tumours—that is, to the solution of the question whether they arise from suprarenal remains in the kidney or are only one form of carcinoma of the kidney.

Mr. Wilfred Trotter² says that a "true carcinoma of the kidney apart from hypernephroma is a very great rarity or possibly does not exist." Sir John Bland-Sutton says³ "the opinion is gaining ground that the majority of tumours classed as hypernephroma are carcinomatous, arising in the cells of the renal tubules, and I share in this opinion. The classification of malignant renal tumours is a difficult matter." In the French work on diseases of the kidney by Jeanselme, Weil, Chauffard and Laederich, the authors describe epithelioma with dark cells and epithelioma with clear cells. They admit that when the clear cells have a tubular arrangement they bear a clear resemblance to the cortical layers of the adrenals; and, indeed, that they are sometimes derived from adrenal remains; but that all clear-celled renal tumours have this origin they say is not true.

The case illustrates very well the metastasis to other organs, which is known to be a feature of hypernephroma. Though the lungs, liver, bowels, and lymph-glands are sometimes the seat of secondary tumours, it is especially the bones and muscles which have been observed to suffer; and these were the chief sufferers in the present case. Apart from the nodules in the lungs, these secondary tumours were four in number, involving in all cases the bones—namely, the right clavicle, the right humerus, the right ilium, and the fourth and fifth lumbar vertebrae.

Mr. Trotter in his paper makes it a point of practical importance that a hypernephroma often produces only one secondary growth. In a group of cases described by Dr. R. Hutchison, sarcomatous growths of the adrenals in children were accompanied by secondary growths in the skull only, but apparently these were not hypernephromas proper.

The fact that these growths pulsated requires some explanation. As a physician I have been haunted all my professional life by the warning that a pulsating abdominal or thoracic tumour may be, in occasional cases, not an aneurysm but a pulsating sarcoma. But I have rarely, if ever, been compensated for my fears by the discovery of such a growth. In my experience pulsating sarcomas are exceedingly rare. No mention is made of the probability of pulsation in these secondary tumours by Mr. Trotter. In Dr. Hutchison's group of cases no sarcoma of the bone appears to have pulsated.

Cancers of the liver, sarcomas and lympho-sarcomas of mediastinal glands, and other large masses of growths rarely pulsate. I saw, however, recently a renal growth which extended anteriorly in the upper part of the abdomen across the middle line, and this portion, lying as it did across or in front of the aorta, pulsated, and the pulsation appeared to be in the growth itself.

I presume pulsation must be dependent upon a high degree of vascularity, and the abundant hæmorrhage in these tumours found after death suggests that such a condition was here present.

The liver under special circumstances pulsates—that is, when by regurgitation through the tricuspid valve the right ventricle is able to impress the force of its contraction upon all the ramifications of the hepatic system of veins. In relation to the large hepatic vein when its current is reversed it is a highly vascular organ; but in relation to the small hepatic artery it is by no means highly vascular; and in health it does not pulsate sufficiently for clinical recognition. It is interesting to note that the liver, with its 60 oz. of weight, has an artery only half the size of the artery of the spleen with its weight of under ten ounces. And yet the spleen, with its relatively huge blood-supply and wide blood channels, is not clinically, even when enlarged, seen or felt to pulsate.

A similar interest attaches to the murmur which was heard over the pulsating growths. Blood is in health coursing rapidly and abundantly through muscles, the liver, and other structures, and yet there is no sound audible with ordinary means of investigation. What is the special condition of a vascular tumour which leads to the production of vibrations of sufficient amplitude to be audible?

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A CONSIDERATION OF SOME ELEMENTARY PRINCIPLES INVOLVED IN THE TREATMENT OF SOIL-CONTAMINATED WOUNDS.

By ALEXANDER G. R. FOULERTON, F.R.C.S. ENG.

A CERTAIN prevalence of tetanus and emphysematous gangrene amongst the wounded in Flanders and France has been inevitable under prevailing conditions of prolonged trench warfare on a highly cultivated terrain and during a season of heavy rain; and so it has become important to consider the best methods for preventing the special dangers incidental to the infection of wounds by the pathogenic anaerobic bacteria whose spores have habitat in the dust and soil. Recent discussion of this question has shown that there is some divergence of opinion as to the best methods for applying in the treatment of soil-contaminated wounds in particular the recognised Listerian principles which regulate the treatment of wounds in general. To some extent discussion has been academical; perhaps necessarily so, inasmuch as emphysematous gangrene has been something of a rarity in civil hospital practice since the general acceptance of and carrying into effect of Lister's teaching. So that it happens that few surgeons now can have had any but small experience in the treatment of this complication of wounds. Nor has attention been given usually in civil practice to any special methods for prophylaxis against the dangers peculiar to soil-contaminated wounds, except that occasionally a hopefully prophylactic but usually, under the conditions in which it has been given, probably useless dose of antitetanic serum has been injected subcutaneously. Otherwise, soil-contaminated wounds have been treated by the methods used in the treatment of "septic" wounds generally. There has not been question as to whether the pathology of soil-contaminated wounds is such that the best methods for their treatment are necessarily those which have been found to be the best for the treatment of other wounds which are liable to infection by, or which have already become infected by,

² THE LANCET, June 5th, 1909, p. 1582.

³ Tumours, p. 105.

the pyogenic cocci which are the cause of danger in a large majority of the "septic" wounds which the surgeon has to deal with in the routine of civil practice. The fact that the "hospital gangrene" of old times ceased to be a factor of possible importance after Listerian methods for the treatment of wounds had come into use is not really relevant to the matter under consideration. The type of emphysematous gangrene known as hospital gangrene, which once was seriously prevalent in hospital practice, was the result of an accidental secondary infection of wounds which were already under treatment. The disappearance of hospital gangrene as a serious complication of wounds in civil practice followed on the prevention of secondary infection from without of wounds under treatment by Listerian methods. Therefore there is not, so far, any evidence to suggest that the particular Listerian methods which have proved to be effective both for prevention of secondary infection of wounds by the common non-sporing pyogenic bacteria, and in the treatment of established infection by the same, are necessarily effective for the treatment of wounds which, either primarily or at any rate before coming under treatment, have been infected by anaerobic sporing species. Indeed, so different is the pathology of the two classes of wound infection that, whilst the fundamental principles of Lister's teaching must apply in either case, one might expect *a priori* that the effective methods for applying those principles in practice would differ with the general nature of the infection, whether by aerobic pyogenic bacteria or by anaerobic species.

As to the Biology and Pathogenic Activity of Strictly Anaerobic Bacteria.

The anaerobic bacteria which occur in the soil and which may cause emphysematous gangrene belong to several species. There is *Bacillus oedematis maligni*, the *Vibron septique* of Pasteur, which forms spores freely, and there are a group of species and strains which, with minor individual characteristics peculiar to each, conform generally with the type form described by Welch under the name of *B. aerogenes capsulatus* and with the nearly allied, or identical, *B. perfringens* of Veillon and Zuber and the *Gasbazzillus* of Fraenkel. *Bacillus aerogenes capsulatus* was described originally by Welch and Nuttall as a non-sporing species, but the formation of spores under certain conditions of artificial culture has been observed by bacteriologists in the United States and elsewhere. In fact, there has been some uncertainty of statement with regard to the sporing capabilities of this group of bacilli. Thus Slater¹ refers to eight strains of strictly anaerobic bacilli of the *B. welchii* type—isolated respectively from five cases of compound fracture caused by crushing, from one other case of lacerated wound without any fracture of bone, and from two cases of punctured wound of the eyeball—which did not show any tendency to spore formation. It is known, however, that anaerobic sporing bacilli are often apparently capricious in the manifestation of their sporing capabilities under conditions of artificial culture; and it is at least probable that all of this group of anaerobic facultative parasites have the power of assuming the spore form under natural conditions. Unless it were capable of assuming a resting and

resistant spore form when the conditions of environment became inimical to active growth, a strictly anaerobic facultative parasite would have little chance of long survival in a world in which strictly anaerobic external conditions are comparatively infrequent in nature, and then are possible only as the result of the activity of other bacteria which exercise on dead organic matter an aerobic fermentative action whereby all available free oxygen is used up.

The bacillary spore differs from the spores of higher species of fungi in that it represents strictly a resting and resistant form which is assumed when the environment becomes inimical to vegetation; the bacillary spore is never a means for multiplication. Amongst the higher mould fungi sporulation is essentially a method of multiplication, and the spores are often of but little higher resistant power than the vegetative forms. Amongst the yeast fungi the spore serves a double purpose, representing at the same time a resistant form and a means of multiplication. When conditions become unfavourable for growth, certain yeasts will produce, one, two, or more endogenous spores. Amongst bacillary species the spore is only a resistant form assumed for the protection of the individual cell in unfavourable circumstances: a single bacillus produces a single spore, and the single spore reproduces only a single bacillus when conditions favourable to active growth obtain again. Therefore, whilst there is not any doubt as to the spore-forming capabilities of *B. tetani*, and of *B. oedematis maligni* and *B. aerogenes capsulatus* amongst the bacteria causative of emphysematous gangrene, it may be assumed that the other strictly anaerobic bacilli which have been described in cases of emphysematous gangrene also have the power of passing into a resistant "spore" stage when exposed to the action of free oxygen.

The natural habitat of these bacilli is the intestinal tract of herbivorous animals, where strictly anaerobic conditions and a temperature favourable to their vegetation prevail. The bacilli are scattered over the ground with the excreta. After oxidation of the excreta by aerobic organisms and subsequent disintegration, the anaerobic bacilli become exposed to the action of atmospheric oxygen, pass again into the spore stage, and so remain until anaerobic conditions are re-established, either in the intestines of an animal or in a wound. Therefore the contamination of a wound with dust or surface soil will mean usually the introduction of spore forms. The introduction of active bacillary forms into a wound is probably rare; the ground air of loam contains, for a depth of many feet, sufficient oxygen to inhibit bacillary growth. On the other hand, when manure is stored in heaps the conditions are very favourable to the active saprophytic growth of anaerobic bacteria; the fermentative activity of co-existent facultative aerobic bacteria ensures at the same time the essential anaerobic conditions, and raises the temperature of the mass of manure to one favourable to the growth of, for instance, *B. tetani*. And so a man who wounds his foot with a fork when working manure may become infected by the active bacillary forms.

The loosely combined oxygen of the oxyhæmoglobin of circulating blood has, equally with free oxygen, an inhibitory action on the strictly anaerobic bacteria. Experiments carried out many years ago by Vincent and Roger showed that

¹ A group of cases in which the *B. welchii* or an allied organism was present. Reports from the Clinical and Research Laboratories, St. George's Hospital, London, 1910.

the injection subcutaneously, and with a minimum of traumatic disturbance, of sporing cultures of *B. tetani* did not cause tetanus when the specific toxins and any surviving bacillary forms had been destroyed by heat. Development of the spores was inhibited, and presumably they were destroyed by phagocytosis. Hence, under ordinary conditions, blood infection by bacilli of this class is impossible during life; bacilli which escape into the blood stream pass at once into the spore stage, and the inert spores disappear in course of time. But when a patient is dying slowly a general blood infection by anaerobic bacilli of the type of *B. aerogenes capsulatus* may occur before death happens. Thus the writer has seen the development of emphysematous patches on the front of the neck of a woman who was dying slowly with an anaerobic infection of the uterus after a criminal abortion had been induced by means of a dirty instrument. In another case, emphysematous patches developed in the subcutaneous tissue of the abdominal wall and of the buttock of a man who was dying very slowly after the perforation of a typhoid ulcer. In these cases dissemination of the bacillary forms becomes possible with an increasingly venous condition of the blood in the arterial circulation, resulting from gradual respiratory failure, and accompanied by a serious diminution of the oxyhæmoglobin content. And the like may happen in cases of emphysematous gangrene. It is uncertain as to how long it is possible for any inert spores which may have escaped into the blood to persist. Earlier workers had shown the harmlessness of the spores of *B. tetani* by themselves when introduced into the tissues under conditions such that immediate vegetation was inhibited. Later experiments recorded by Canfora² seem to show that the spores of this species, at any rate, may persist in the circulating blood and in certain tissues for a considerable length of time. Canfora injected guinea-pigs and rabbits subcutaneously with sporing cultures in which both toxins and bacillary forms had been destroyed by heat. Tetanus did not result in any case; but cultures of the bacillus were obtained from blood drawn off from the femoral vein as soon as 12 hours after the injection, and successful cultural tests demonstrated the presence of spores in the circulating blood as late as the thirteenth day afterwards. On the other hand, there is well-known experimental evidence that *B. aerogenes capsulatus* disappears from the circulating blood very rapidly.

The establishment of infection when a wound becomes contaminated with soil containing the spores of pathogenic anaerobic bacteria depends, then, upon a preliminary establishment of anaerobic conditions. The cavity of the wound, or some part of the wound, must become free from oxygen before the spores can become bacilli, and before bacilli can vegetate. The wounded tissues must be deprived of oxygenated blood before their invasion by the bacilli is possible. As far as the surface of the wall of the wound is concerned, the essential anaerobic conditions will often be provided at once. With injury by bullet or shell fragment, contusion of the tissues will be followed by temporary arrest of the capillary circulation of the surface exposed in the wound; and beneath the exposed surface there will be a zone of venous congestion. As a result of

the activity of facultative aerobic pyogenic bacteria the deeper parts of the cavity of the wound and any pockets in a lacerated wound will soon be deprived of any atmospheric oxygen. In this oxygen-free atmosphere the spores of anaerobic bacteria which have been introduced into the wound will develop; and the resulting bacilli, if of the type which cause emphysematous gangrene, will invade the adjoining tract of anaerobic tissue. In the case of a deep lacerated wound the anaerobic area of the cavity will increase automatically. Anaerobic bacteria, like all other forms of life, require oxygen for the purposes of metabolism. Unable to utilise free atmospheric oxygen they obtain what is necessary from the combined oxygen of dead organic matter; and, in the consequent decomposition of the organic matter, products with a low content of combined oxygen, or altogether free from oxygen, are formed. Amongst these products are quantities of gases, such as nitrogen, sulphuretted hydrogen, and the carburetted hydrogens, which will displace any remaining free oxygen from the wound cavity.

Up to this point, which marks what may be termed the establishment of infection, general considerations as to the pathology of the wound apply equally to all strictly anaerobic pathogenic bacteria. The further progress and results of infection must be considered with reference to the disease produced.

The Pathology of Tetanus.

Infection being established, it does not appear that the toxins of the bacillus of tetanus have any seriously injurious effect on the tissues immediately around the nidus of infection; nor do the bacilli invade neighbouring parts to any extent. Any local reaction following on the injection of a moderate dose of tetanus toxin usually subsides quickly, so that scarcely any trace of the inoculation may be found locally on the death of the animal, perhaps 24 hours afterwards. This absence of any sign of local tissue reaction sometimes characterises cases of chronic tetanus in man, when because of the insignificance of the original lesion and the absence of any local reaction the nidus of infection may be overlooked, so that the case is sometimes described as one of "idiopathic" tetanus. In tetanus, therefore, there is a simple toxæmia, the manifestation of which results from the special affinity of susceptible nerve substance for tetanus toxin. The clinical course of a case of tetanus appears to be determined mainly, and apart from the individual susceptibility of the patient, by the quantity of the initial dose of spores and the local facilities for the multiplication of the bacillary forms. With a heavy dose of infecting bacilli, or with their extensive multiplication in the wound, large quantities of toxin are carried by the circulation to the nerve centres, and also perhaps by direct conveyance along the nerve trunks supplying the wounded part. Whether carried directly to the motor ganglia by the nerve trunks, or whether abstracted by the nervous tissues from circulating blood, the symptoms of tetanus result when sufficient toxin has been accumulated in the nerve centres to disturb their functional activity. If the quantity of toxin is large, death occurs before any effective development of the autoprotective process is possible. If, on the other hand, the initial dose of spores is small, and the local conditions for their development are restricted, the rate of adsorption of toxin by the nerve centres is comparatively slow; so

² Ueber die Latenz der Tetanus-sporen im Tierschen Organismus, Centralblatt für Bakteriologie, Abt. 1, Orig., vol. xlv., p. 495, 1908.

that before sufficient toxin to impair seriously the normal functions of the nerve centres has been adsorbed the process of auto-immunisation against the toxin will be advanced, so that with or without the added effect of special treatment the process of immunisation may outstrip that of intoxication, and recovery occur.

The Pathology of Emphysematous Gangrene.

Whilst the bacillus of tetanus shows little tendency to invade neighbouring healthy tissues, and the symptoms of infection are essentially those of a toxæmia, the establishment of infection by one of the group of bacteria which cause emphysematous gangrene is followed by a progressive invasion of previously healthy tissues, after their exposure to the necrosing action of toxins formed by the bacilli. In detail, the course of a case of emphysematous gangrene is as follows. Anaerobic conditions having been established in some part of the cavity of the wound, the spores develop into bacilli which assume active growth. The tissue wall of the wound may be already, as regards its surface layer, in an anaerobic condition. But in any case an anaerobic condition will be rapidly induced by the necrosing action of the toxins formed. An invasion of the tissues by the bacilli then occurs. Once that the bacilli are established in the wall of the wound, the toxins cause a necrosis of fresh tissue in their immediate neighbourhood, and so prepare successive zones of anaerobic tissue which are quickly occupied by advancing bacillary growth. It is uncertain as to what extent the progressive necrosis is due to the direct action of specific toxins secreted by the bacilli or to the action of injurious by-products formed in the decomposition of tissues already invaded by the bacilli. For instance, amongst the by-products formed in the tissues is sulphuretted hydrogen, which itself destroys red blood cells by its action on the iron of the hæmoglobin. Nor is it known whether the general symptoms in emphysematous gangrene are caused chiefly by the absorption of specific bacillary toxins, or by decomposition products produced by the direct action of the bacilli on the tissues.

The Early Treatment of Soil-contaminated Wounds by Continuous Oxygenation.

The first objective in the treatment of soil-contaminated wounds is the avoidance of dangers incidental to the introduction of anaerobic bacteria or their spores into the wound. Common pyogenic bacteria will be present also; but the potential danger associated with these is a lesser danger. The sporing organisms may be dealt with by either of two methods, or by the two combined. Either the usual attempt to disinfect the wound by means of active germicides may be made, or the activity of the anaerobic species may be inhibited by the method of continuous oxygenation now described. Or, again, the method of oxygenation may be applied after the bacterial content of the wound has been reduced as much as may be by the other method. With regard to disinfection of the wound, only the most powerful germicides available are likely to be effective, under the conditions, against highly resistant sporing species infecting lacerated and soil-contaminated wounds. The treatment, if effective, will leave already damaged tissues with their vitality yet more impaired, and so will tend to increase the area of tissue reduced to an anaerobic state, and available

for the establishment of infection by bacilli produced by any spores which may have escaped the action of the disinfectant. If, on the other hand, the method of continuous oxygenation is brought in after attempted disinfection, the surgeon has a free choice as to the germicide to be used in the preliminary process. Subsequent oxygenation of the wound will prevent any danger arising from the production of an anaerobic condition of the tissues, which might be urged in objection against the use of an effective germicide such as pure phenol. Whilst satisfactory oxygenation of a wound by frequent irrigation with peroxide of hydrogen is practicable in civil practice, the method is obviously impossible under the conditions of field surgery. Therefore an investigation has been carried out as to the suitability to the purpose of certain substances which will yield a free supply of nascent oxygen when introduced, by insufflation, or otherwise, into a wound.

Whilst other compounds are available, the tests now referred to have been carried out with the peroxides of calcium and barium and with sodium perborate. Two samples of calcium peroxide were used, one with a stated yield of 9.75 per cent. of available oxygen, the other with a yield of 6.5 per cent. In determining as to relative suitability to the end in view, the following points have been investigated in connexion with the respective compounds: (1) As to their toxicity; (2) as to the quantity and rate of evolution of their yield of oxygen under different conditions; (3) as to the nature of the solid residue, if any, left after decomposition of the compound; and (4) as to the germicidal value of the evolved oxygen, as apart from its inhibitory action on anaerobic bacteria. Whilst the investigation is not as yet complete the results obtained so far justify recommendation of trial of the method in practice.

With regard to toxicity, it does not appear that the use of any of the three compounds could be followed by any injurious general effect. But the depressant effect of barium salts had to be considered. Decomposition of barium peroxide in watery solutions results, however, in the production of some barium hydrate and an insoluble residue of oxide which would not be absorbed by the blood. Suspensions in water of 1 gramme of the peroxide were injected into the peritoneum of the guinea-pig, and also subcutaneously, without any unfavourable result.

Next, experiments were carried out in order to ascertain the relative rapidity of evolution of oxygen under certain conditions from equal weights of the three compounds respectively. Equal quantities, by weight, of each were introduced into ordinary fermentation tubes, and the long arm of the tube was filled with 30 c.c. of either water, pus diluted with tap water, or a heavy suspension of washed red corpuscles in normal saline solution. The fermentation tubes were then kept at a temperature of 37° C. and the amount of oxygen collected in the long arm was read off from time to time. In the schedule of the results of experiments quoted below, the figures given represent, in cubic centimetres or in parts of a cubic centimetre, the volume of gas collected in a given time, and so represent the relative rapidity of evolution of oxygen. It is scarcely necessary to add that the figures do not show the total volume of oxygen given off from the given weights of the compounds, since a considerable proportion of the gas evolved is lost by escape from the open end of the tube.

The results of two experiments carried out with the purpose of determining the relative rapidity of the evolution of oxygen from the respective compounds when mixed with tap water are subjoined.

Experiment 1.

	60 min.	2 hrs.	24 hrs.	48 hrs.
Barium peroxide, 0.5 grm. in 30 c.c. of tap water	0.38	1.52	3.42	4.94
Sodium perborate, 0.5 grm. in 30 c.c. of tap water	0.38	1.52	7.22	11.78
Calcium peroxide (9.75% of available oxygen), 0.5 grm. in 30 c.c. of tap water	0.665	1.9	4.56	7.98

Experiment 2.

	60 min.	3 hrs.	24 hrs.
Sodium perborate, 0.5 grm. in 30 c.c. of tap water	about 0.2	1.52	11.4
Calcium peroxide (9.75% of available oxygen), 0.5 grm. in 30 c.c. of tap water	about 0.2	0.76	3.8
Calcium peroxide (6.5% of available oxygen), 0.5 grm. in 30 c.c. of tap water	about 0.2	0.76	3.8

With these and other similar experiments it was found that the results were not always exactly concordant quantitatively—a consequence of the somewhat rough method used for measuring the amount of gas evolved, and due partly to the unstable chemical condition of the compounds. But the results of the two sets of experiments given show fairly enough the relative rates of evolution of oxygen from each of the three compounds when mixed with water and kept at blood heat. In further experiment, the evolution of oxygen was estimated when the substances were mixed either with a heavy suspension of washed red corpuscles in normal saline solution or with a 10 per cent. dilution of streptococcic pus in tap water.

Experiment 3.

	90 min.	5 hrs.	24 hrs.
Barium peroxide, 0.5 grm. in 30 c.c. of red corpuscle emulsion	0.38	0.76	2.28
Sodium perborate, 0.5 grm. in 30 c.c. of red corpuscle emulsion	14.06	16.72	19.0
Calcium peroxide (9.75% of available oxygen), 0.5 grm. in 30 c.c. of red corpuscle emulsion	0.38	1.14	3.04

Experiment 4.

	60 min.	24 hrs.
Barium peroxide, 0.5 grm. in 30 c.c. of red corpuscle emulsion	0.76	2.5
Sodium perborate, 0.5 grm. in 30 c.c. of red corpuscle emulsion	9.5	15.0

Experiment 5.

	60 min.	3 hrs.	24 hrs.
Sodium perborate, 0.5 grm. in 30 c.c. of red corpuscle emulsion	12.92	13.68	17.86
Calcium peroxide (9.75%), 0.5 grm. in 30 c.c. of red corpuscle emulsion	0.38	1.14	2.66
Calcium peroxide (6.5%), 0.5 grm. in 30 c.c. of red corpuscle emulsion	0.38	0.95	3.42

In the next two experiments barium peroxide and sodium perborate were added respectively to 10 per cent. dilutions of two different specimens of streptococcic pus. For dilution of the pus in the experiment with barium a 0.6 per cent. solution of citric acid was used, and in the experiment with the sodium compound a 0.2 per cent. solution of boric acid. Mixtures of the compounds without the addition of pus were used for control purposes.

Experiment 6.

	2 hrs.	24 hrs.
Barium peroxide, 1 grm. in 30 c.c. of a 10% dilution of pus in citric acid solution	5.7	7.6
Barium peroxide, 1 grm. in 30 c.c. of citric acid solution	0.47	6.08

Experiment 7.

	30 min.	20 hrs.	96 hrs.
Sodium perborate, 1 grm. in 30 c.c. of a 10% dilution of pus in boric acid solution	20.54	24.34	24.35
Sodium perborate, 1 grm. in 30 c.c. of boric acid solution	8.74	15.96	17.1

From these experiments it will be seen that the evolution of oxygen from sodium perborate in the presence of water, and at a temperature of 37° C., is very much more rapid than from equal weights of either of the two other compounds. Sodium perborate and calcium peroxide being the more suitable for the oxygenation of wounds, it is of interest to compare them in view of the special requirement—the liberation continuously of effective quantities of oxygen. Experiments, of which Nos. 1 and 2 above are examples, have shown that in tap water the decomposition of the sodium and calcium compounds proceeds with a certain degree of regularity, whilst the ultimate yield of gas from the perborate is the greater. On the introduction of organic matter the evolution of oxygen is considerably accelerated, and especially so with the perborate. With this latter the evolution of gas is very rapid during the first three or four hours and then slows down, but appreciable quantities are still given off after 24 hours in some cases. The decomposition of the powdered perborate introduced into a wound would certainly be slower, however, than in these experiments, in which the perborate became dissolved fairly quickly in the considerable excess of water present.

Further experiments are in progress with the object of ascertaining whether it is possible to retard somewhat the decomposition of the perborate in the presence of organic matter, and so to produce a rather slower and more even supply of oxygen. And this, although an active initial production of oxygen, may be an important consideration in the treatment of heavily contaminated wounds. Other experiments are being carried out in order to ascertain whether by the addition of a small quantity of some such substance as citric acid it is possible to accelerate the evolution of oxygen from the calcium compound. But, in any case, the perborate used by itself will meet the essential requirements.

Another matter which had to be tested was the degree of alkalinity of the residue left after decomposition of the several compounds. The necessary titrations were carried out with mixtures which had been kept at blood heat during the period of experiment. Quantities of 50 c.c. of the respective mixtures were made up, and quantities of 10 c.c. were pipetted off for titration at the times stated. Phenolphthalein was used as the indicator. The pus emulsion tested in Experiments 9 and 10 was made up with pure streptococcic pus, but the proportional amount of pus used was not the same in each, and the pus used came from two different cases. The figures given show the percentage acidity, or alkalinity, in terms of hydrochloric acid and sodium hydrate respectively.

Experiment 8.

	60 min.	24 hrs.	48 hrs.
Barium peroxide, 1 grm. in 50 c.c. of tap water	0.02 NaOH	0.12 NaOH	0.096 NaOH
Calcium peroxide (available O = 9.75%), 1 grm. in 50 c.c. of tap water	0.008	0.04	0.096
Calcium peroxide (available O = 6.5%), 1 grm. in 50 c.c. of tap water	0.08	0.132	0.14
Sodium perborate, 1 grm. in 50 c.c. of tap water	0.103	0.72	0.412

Experiment 9.

	30 min.	24 hrs.
Barium peroxide, 1 grm. in 50 c.c. of tap water...	0.014 NaOH	0.102 NaOH
Sodium perborate, 1 grm. in 50 c.c. of tap water...	0.228 "	0.512 "
50 c.c. of pus emulsion	0.0145 HCl	0.0072 HCl
Barium peroxide, 1 grm. in 50 c.c. of pus emulsion	0.016 NaOH	0.104 NaOH
Sodium perborate, 1 grm. in 50 c.c. of pus emulsion	0.212 "	0.416 "
Barium peroxide, 1 grm. + 1 grm. citric acid in 50 c.c. of pus emulsion	0.6837 HCl	0.0181 HCl
Sodium peroxide, 1 grm. + 1 grm. citric acid in 50 c.c. of pus emulsion	0.6255 "	0.5055 "

Experiment 10.

	30 min.	22 hrs.
Sodium perborate, 2 grm. in 50 c.c. of tap water...	0.348 NaOH	0.796 NaOH
Sodium perborate, 2 grm. in 50 c.c. of pus emulsion	0.46 "	0.752 "
Sodium perborate, 2 grm. + 0.5 grm. boric acid in 50 c.c. of tap water	0.116 "	0.416 "
Sodium perborate, 2 grm. + 0.5 grm. boric acid in 50 c.c. of pus emulsion	0.72 "	0.92 "

As with the estimation of evolution of oxygen, the titration results were not always exactly concordant quantitatively, but it is evident that the degree of alkalinity produced in the decomposition of the perborate is considerably higher than with the two peroxides. But with this increased alkalinity there is an increased yield of oxygen, so that any favouring influence of alkalinity on bacterial growth is negated by the inhibitory effect of oxygen, as such, on the development of anaerobic species, and by a certain germicidal effect on other bacteria by reason of the nascent state of the gas. Also it appears from experiments which are being carried out at the time of writing that any excessive alkalinity can be avoided by the admixture of a small quantity of citric acid. The perborate dissolves slowly in pus and blood mixtures, and does not leave any insoluble residue. Both of the peroxides yield on decomposition a certain bulk of insoluble residue, which could, however, be removed readily from an open lacerated wound by syringing.

The Germicidal Value of Nascent Oxygen.

Since the special object in these investigations was to ascertain the practicability of inhibiting the activity of anaerobic organisms, it has not been thought necessary to investigate specially the known germicidal properties of nascent oxygen, beyond the carrying out of one or two tests for the purpose of confirming the activity of the gas as evolved from these compounds. Barium peroxide and sodium perborate were mixed in quantities of 0.5 grm. and 1 grm. with 20 c.c. of bacterial emulsions and incubated at a temperature of 37° C. The results were as follows:—

- S. pyogenes aureus.—Not affected by 25 minutes' exposure in 5 per cent. mixtures. Marked inhibition in peroxide 5 per cent. mixture after one hour's exposure and in 2.5 per cent. perborate mixture after two hours. Sterilisation in peroxide 2.5 per cent. mixture after two hours' exposure, and in perborate 5 per cent. mixture after one hour's exposure.
- B. coli communis.—Slight inhibition after 25 minutes' exposure in 5 per cent. peroxide mixture, sterilisation later. Sterilisation after 15 minutes' exposure in 5 per cent. perborate mixture.
- B. anthracis (sporing culture).—In one experiment, sterilisation after 24 hours' exposure in 5 per cent. perborate mixture. In a second experiment there was very little effect after 24 hours' exposure in 5 per cent. peroxide and perborate mixtures, but with each there was sterilisation within 48 hours.

The above experiments having been carried out with watery emulsions of the respective cultures, a few other experiments were carried out with

streptococcic pus and with an infusion of putrefying meat.

Mixtures of 10 parts of pus and 90 parts of normal saline solution were used, and sterilisation was effected in one experiment within 24 hours' exposure in a 5 per cent. perborate mixture; with another specimen of pus 22 hours' exposure in 5 per cent. peroxide and perborate mixtures failed to effect sterilisation, but the mixtures were sterile when examined 24 hours later. The addition of 5 grm. of either the peroxide or perborate to an infusion of putrefying meat resulted in sterilisation in within from 24 to 48 hours.

It would appear, then, that the germicidal activity of nascent oxygen evolved from sodium perborate is comparable, volume for volume, with the activity of the gas when given off from hydrogen peroxide. In either case the rapidity of the action of the gas on bacteria in a wound is affected materially by the presence of dead oxidisable organic matter which will divert the action of the gas in another direction.

The Application of Sodium Perborate to Wounds.

When there is opportunity for the early treatment of a recently soil-contaminated wound, and before the probability of any active vegetation of spores has to be considered, it appears that a thorough insufflation with sodium perborate, after any necessary preliminary cleansing, will effect all that is required in the way of inhibiting the activity of anaerobic bacteria; also the growth of other species which may be present will be checked by the action of nascent oxygen. In hospital practice, the insufflation could be repeated at intervals of less than 24 hours; but consideration of the experimental results suggests that if the perborate is applied freely there will be a continuous evolution of oxygen for the full period of 24 hours. Meanwhile, the dressing should be of the lightest possible description, and not more than is necessary to absorb discharges. If, on the other hand, the wound does not come under treatment until it may be reasonably supposed that there has been opportunity for the vegetation of anaerobic bacteria, and for establishment of infection of the wall of the wound, insufflation with the perborate should be preceded by thorough cleansing of the wound and swabbing out of the cavity with pure phenol, in the hope of destroying any anaerobic bacteria which already may have established themselves in the tissues. Objection has been raised to the use of phenol for the purpose, with the argument that the resultant destruction of tissue will provide an anaerobic area in which extension of infection will be favoured. But I do not think that under the conditions this argument is valid. The special bacteria concerned are those causing emphysematous gangrene; B. tetani does not tend to spread by invasion of tissue. If vegetating bacilli of the kind which cause emphysematous gangrene are already present in the wound cavity, it is merely a matter of time before they will have produced sufficient toxins to render the already injured wall of the wound sufficiently anaerobic to invite invasion. If the wall of the wound is already invaded, local extension of the infection will proceed automatically; and under those circumstances the only hope of arresting infection is by the use of a germicide which will reach the bacilli already established in the tissues. And, as a matter of fact, reference to the surgical literature of the days when hospital gangrene was of common occurrence shows that the means of treatment which were found most effective in arresting the spreading gangrene involved the free use of powerfully caustic agents, such

as nitric acid and arsenical preparations. However this may be, any possible objection to the use of phenol disappears if the activity of any bacillary forms remaining in the wound is inhibited by the presence of oxygen; and at the same time the destruction of any bacilli which have not invaded the wall of the wound to a depth beyond reach of the phenol is effected. In order to preserve the perborate in an anhydrous condition for field work it may be kept in an air-tight metallic receptacle containing a convenient quantity of the powder.

Vaccinotherapy and Serotherapy in Emphysematous Gangrene and Tetanus.

In spite of certain results which have been recently published by Weinberg³ it is difficult to conceive any scope of utility for either vaccine or serum treatment, either for the prevention of, or for the cure of, emphysematous gangrene. So far as one understands, it is in the essence of the disease that the spreading of the gangrene occurs by progressive invasion of tissues which have already been subjected to the necrosing action of the bacillary toxins, and in which the circulation has already ceased. For this reason, and quite apart from difficulty arising from uncertainty as to the species of bacillus against which prophylaxis is desirable, expectation of any advantage by the use of either a sensitised vaccine or an antibacterial serum would appear to be hopeless. Nor is there at present any prospect of obtaining an antitoxic serum which could be used with any reasonable hope of success. Such a serum would not in any way interfere with the activity of the bacilli in the infected area, whilst its effect on the general toxæmia would be, at the best, highly doubtful. The immediate cause of death in emphysematous gangrene is not known—as to whether it is the result usually of a septicæmia due to a secondary general infection by other bacteria, or whether it is usually the result of a toxæmia produced by the primary anaerobic infection. If the latter is the important issue, then we do not know to what extent the mischief is caused by specific toxins formed by the bacilli themselves, or to what extent decomposition products of the patient's own tissues are concerned.

The value, both prophylactic and curative, of the specific antitoxic serum in tetanus is recognised by all, but it is doubtful whether the serum is usually employed in the most effective way. When used for prophylactic purposes, the commonest practice has been to administer a single dose of serum as soon as the case has come under treatment. Antitetanic serum being purely antitoxic, has no effect on the activity of the specific bacillus, and does not in any way check the production of its toxin. It merely neutralises, according to its potency, some or all of the toxins circulating in the blood. If the antitoxin is introduced into the blood in sufficient concentration there will also be neutralisation of toxin already absorbed by, and accumulated in, the central nervous system. From the time when infection by *B. tetani* is established there is a continuing output of toxin, for the neutralisation of which a continuing administration of antitoxin is required so that a passive immunity is maintained. Therefore, if it is thought advisable to give antitetanic serum for purposes of prophylaxis, the dose should be repeated every second day for a period of 10 or 12 days.

³ Premiers Essais de Vaccinothérapie des Infections Gazeuses, Comptes Rendus de la Société de Biologie, vol. lxxvii., p. 543, 1914.

In view of the results of the work of Roux and Borel, 15 years ago, it is difficult to understand why intracerebral injection of antitoxic serum has not come into universal use in the treatment of developed tetanus, as the most effective method of neutralising the toxin accumulated in the central nervous system. The little operation necessary cannot, if performed with ordinary care, produce by itself any injurious result; and the advantage of introducing the antitoxin directly into the nerve tissue in which the toxin has been accumulated would appear to be obvious. It is at least doubtful whether injection of antitoxin into the cerebro-spinal sac has the result hoped for, when the operation is practised in the treatment of tetanus and other diseases in which the central nervous system is seriously involved. There is no reason to suppose that the effect of such injection is other than the effect of an injection given intravenously or subcutaneously. The cerebro-spinal sac probably represents a dilated efferent lymph track, and the flow of fluid will be from the sac into the blood, and not in the reverse direction—into the lymph spaces of the nerve substance.

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A CASE OF PHENACETIN POISONING; RECOVERY.

By P. HAMILL, M.A., M.D. CANTAB., M.R.C.P. LOND.,
AND

T. G. M. HINE, M.A., M.D., B.C. CANTAB.

INSTANCES of phenacetin poisoning are sufficiently uncommon to justify the publication of the following case with a short commentary on the subject.

Mrs. —, aged 37, had been suffering for some time from chronic colitis, with a previous history of dysentery, for which she was being treated with a vaccine of a paratyphoid organism isolated from her stools. In order to diminish the reaction, which had been somewhat excessive with the ordinary vaccine, the organisms were sensitised after the manner of Besredka. Of this sensitised vaccine she received three injections, each containing 5,000,000 organisms, on Sept. 3rd, 7th, and 11th, 1914. The first and second injections produced no marked reaction except slight headache and local signs as of bruising. The administration of the third dose coincided with the onset of the catamenia, but the patient had not disclosed her condition to her medical attendant. She had been told that for headaches she might take one tablet containing 5 gr. of phenacetin every half hour until relieved, but not more than three consecutively. On Sept. 12th she was confined to bed with headache, which she did not report, and, contrary to instructions, took several 5 gr. tablets of the drug, but the exact number is unknown. (This fact was not disclosed until two days later.) Apparently she was well that evening, except for slight continued headache.

Early in the morning of the 13th diarrhoea set in, and continued until about 3 P.M. She was seen by one of us (T.G.H.) at 4 P.M., when her temperature was normal, pulse 80, and respiration natural. She was pale, had no nausea or vomiting, but said that her head had been swimming when she sat up, and there was some general malaise. Diarrhoea, as usual, had been her chief trouble, but this was ceasing. She said that she had recently (about 2 P.M.) taken two phenacetin tablets, the last in the bottle. She was advised to remain in bed, but no special steps seemed to be called for as the reaction to the vaccine appeared to be following its usual course. During the late afternoon the headache diminished. About 8.30 P.M. a telephone message was received to the effect that the patient looked rather blue, but she did not wish the doctor to come; she was advised to take a small quantity of brandy. At 10.30 P.M. an urgent call was received that she was very ill, purple in colour, and violently sick. She attributed the vomiting to the brandy she had taken.

She was seen ten minutes later. On examination she was very collapsed, of a deep dusky mauve colour, and wandering occasionally in her mind, but she recognised her medical attendant. She was retching violently and continually, and bringing up a little mucus. Her pulse was 120, very feeble; her respirations were shallow and uncountable because of the constant straining and restless movements. Strychnine, gr. 1/100, and digitalin, gr. 1/100, were administered hypodermically, hot bottles were applied, and she was persuaded to take some champagne. The condition was diagnosed as poisoning by some aniline compound, and phenacetin was suspected. The other of us (P.H.) was sent for, and arrived at 11.15 P.M. The patient was delirious, but had intervals of lucidity and periods of restlessness, alternating with others in which she was semi-comatose. She was still retching violently and continually. The vomit was scantier, but it was now blood-stained. The upper extremities were cold and the pulse was almost imperceptible. Strong coffee and small quantities of champagne were given, and oxygen was administered at frequent intervals in high concentration; under the influence of this the cyanosis changed its tint but did not disappear. Most of the fluid taken was vomited, though we think that a portion of the coffee was retained. Several half-pints of hot water were given by the mouth in order to wash out the stomach, but a tube was not used. The vomit gradually became colourless and less frequent. The patient's mental condition slowly improved, and about 12.30 A.M. (Sept. 14th) she smiled and laughed. The pulse was still well-nigh imperceptible; her colour oscillated between bright purple and deep blue, and at frequent intervals she sneezed. At 12.45 A.M. the patient was somnolent but restless; 1/50 gr. strychnine was given subcutaneously. Her respiration improved but was still feeble; the pulse-rate was 100 but much stronger. Her colour also lost some of the mauve tint, though her lips remained cyanosed. At 1 A.M. she was well enough to be left. Instructions were given that the vomit and urine should be preserved, but unfortunately this was not done.

At 9 A.M. the patient was still somewhat blue in the lips, and though feeling very weak expressed herself as much better, but was unable to sit up or get out of bed without feeling faint and unsteady. The temperature was 98.8° F., the pulse 96, and respiration normal. There was now no headache, but she still felt dizzy. There had been no vomiting since midnight, and no sweating. The bowels were opened once that morning, the stool being natural in character. Light food, such as meat essence and egg flip, was ordered, and sal-volatile if required, but nothing else for 24 hours. No rash was observed. Her further recovery was uneventful. A specimen of urine obtained during the evening of the 14th gave no reaction for paramido-phenol.

The patient later remembered little or nothing of her condition, was inclined to treat it very lightly, and said she suffered nothing at all. During the first hour and a half, however, her condition was most alarming, and we entertained grave doubts as to the issue. A month later her blood was 85 per cent. hæmoglobin, and red blood corpuscles 4,900,000, but she was pale and still had some dizziness and palpitation, which now have practically disappeared.

In this case certain data are unfortunately absent. The total quantity of phenacetin taken is not known, but could hardly be more than 60 gr., if so much, since she had taken during the preceding three weeks several doses from a bottle containing 25 5-gr. tablets; moreover, not more than 10 gr. were taken within the 24 hours preceding the onset of the symptoms. An accident by which the vomit and the urine were lost prevents our presenting definite proof that phenacetin was the toxic agent, but diligent inquiry failed to elicit that any other compound of this group had been taken. The outstanding features—namely, giddiness, deep cyanosis, vomiting, and collapse, with feeble respiration—have been described in the few cases of poisoning by this drug which have been reported. Sweating, however, was absent in this case, and we believe that early diarrhoea was the result of the vaccine rather than the drug, since it had been the prominent symptom in her reaction to all former

injections, and it ceased before the onset of the severe symptoms. A further point of interest lies in the long interval between the taking of the drug (the major part was taken on the 12th and the last dose about 2 P.M. on the 13th) and the onset of severe toxic symptoms late in the evening of the 13th. These events accord with our knowledge of the slow absorption and breakdown of phenacetin as compared with acetanilide and other bodies of this group.

It is worthy of comment that the specimen of urine obtained 24 hours after the onset of symptoms showed no evidence of breakdown products of phenacetin, whereas the urine of an albino rabbit (weighing 1600 grm.) passed 20 hours after it had received an intraperitoneal injection of 0.35 grm. (i.e., five times the maximum dose for man calculated per kilo of body weight) showed a well-marked reaction for paramido-phenol. The animal showed no further effects and took its food freely.

As regards the cause of the peculiar colour of the patient's lips and face—a deep dusky mauve—a question arises whether it was due to lack of oxygen resulting from circulatory failure or to some alteration of the blood pigment—e.g., the formation of methæmoglobin. We were unable at the time to collect samples of blood in order to investigate this matter, but it may be pointed out that so far as we could judge by artificial (electric) light the colour of the blood appeared to be more mauve than blue, and, furthermore, the inhalation of almost pure oxygen failed to restore the natural colour. Nevertheless, in the rabbit mentioned above no spectroscopic evidence of methæmoglobin could be found in specimens of blood taken at intervals after the injection, nor was any cyanosis of the ears or eyes visible by daylight.

We have traced records of two fatal cases in the literature of this subject. Fränkel¹ describes a case of a girl, aged 17, who died after taking 15 gr., and Krönig² reports the case of a boy of the same age who took five doses of 15 gr. in three weeks, the last of which proved fatal in three days. The symptoms of the latter case were similar to those of our own. Cases of severe poisoning with ultimate recovery after 100 gr., with a respiration rate of from two to three per minute, have also been recorded by Fränkel.³ Betts⁴ describes the case of a man who had taken three doses of 8 gr. each in six hours. His temperature fell below 95°F. Welsford⁵ reports a case in which 72 gr. were taken, with symptoms similar to our case; the duration of urgent symptoms did not exceed three hours.

Finally, it may be noted that our patient took the large doses of phenacetin on the second day of her catamenia. Brunton⁶ points out that many of the reported cases of collapse following the administration of substances of the antipyrin and phenacetin group have been in women during the menstrual period. He says:—

It would almost seem as if during this period there is such a change in the nutrition of a woman's organism that antipyrin and phenacetin seem to act more quickly upon the blood and to produce methæmoglobin, so it is well to be careful about the administration of these antipyretics when a woman is menstruating. . . . Now, it is just at this time that you are very likely to give them, because it is just at the menstrual period that women suffer more from headache than in the intervals.

¹ Fränkel: Vereins Beilage, Deutsche Medizinische Wochenschrift, 1895.

² Krönig: Berliner Klinische Wochenschrift, 1895.

³ Fränkel: Ibid.

⁴ Betts: Brit. Med. Jour., 1896.

⁵ Welsford: Ibid., vol. i., 1911.

⁶ Brunton: Action of Medicines.

TWO CASES OF TRAUMATIC HÆMOPERITONEUM.

BY C. HAMILTON WHITEFORD, M.R.C.S. ENG.,
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DISTENSION of the general peritoneal cavity by blood, as distinguished from localised blood effusions, is, apart from tubal pregnancy and extensive visceral injuries, uncommon. In neither of the following cases did the condition of the patient permit treatment of the bleeding area, but in neither case was there further hæmorrhage. In Case 1 the bleeding came from an infected wound of the liver. Such a condition, when the patient survives 17 days without further complications, would, in a sane person, probably result in recovery. As regards Case 2, there was no special difficulty in the operation and no reason to think that the peritoneal cavity had been entered through the uterine wall. The possibility that the bleeding might have originated in a pregnant tube was negated by the examination of the tubes at the second operation. The blood count exactly expressed the conditions found. The small leucocytosis in cases of hæmoperitoneum is probably due to infection of the effused blood by the staphylococcus albus, which was found by Dudgeon and Sargent¹ in 17 consecutive cases of ruptured tubal pregnancy. In perforation of the uterine wall, the result either of operation or of attempts at criminal abortion, excessive loss of blood is not common, such risk as exists being due to sepsis.

Incidentally Case 2 illustrates the advantages of performing even small operations in aseptic surroundings; the occurrence in this case of even a moderate degree of sepsis, such as is common in operations performed in bedrooms, would probably have proved fatal.

CASE 1.—A man, aged 22, stabbed himself in the left hypochondrium with a bayonet. The wound opened the peritoneal cavity and celiotomy was performed through the left rectus muscle. A handful of blood clot was removed from between the stomach and left lobe of the liver. Swabs passed into the pelvis returned dry. The source of the bleeding, which had ceased, was the left lobe of the liver, which was completely perforated 1½ inches above its lower border. No other viscus was injured. The abdominal incision was closed, and the bayonet track in the parietes packed with gauze soaked in tincture of iodine. Forty-eight hours later the lower abdomen became tense and tender and was drained suprapubically by a tube passed into the pelvis, many pints of blood and peritoneal fluid being evacuated. The gauze in the bayonet track was replaced by a tube. Both incisions suppurred freely. Food was taken well and the bowels acted regularly. The abdominal condition steadily improved, but the mania became more acute. Most of the known hypnotics were given in heroic doses but failed to secure sleep, and the patient died exhausted 17 days after the injury.

CASE 2.—The patient was a married woman, aged 39, who had had one child seven years ago but no other pregnancies, and in whom one and a half years ago menstruation began to last from four to seven weeks, without pain or inter-menstrual discharge. The loss was not sufficient to cause marked anaemia. The operation was performed in a private operating theatre. Per vaginam the uterus was found to be mobile and 3 inches in length, the cervix being unusually long. The only abnormality was a hard, submucous mass, embedded in the right side of the cervix and extending upwards in the uterine wall. This mass, which was not encapsuled, was dissected out, the right side of the cervix being divided and closed by sutures at the end of the

operation. The mass removed resembled in size and shape the two phalanges of an adult thumb, and was shown by the microscope to consist of avascular fibrous tissue with no signs of a capsule. Two hours after operation the patient rapidly became collapsed and almost pulseless. The collapse slowly passed off under stimulation and administration of saline solution per rectum. Fifty-six hours after operation there was definite peritonitis with distended immobile abdomen, dulness in the flanks, repeated vomiting, and complete intestinal paralysis, pulse 120, and acute pain.

A blood count by Dr. W. L. Pethybridge showed leucocytes 13,000 and red cells 50 per cent. below normal. A drainage-tube was inserted into the pelvis from above the pubes, evacuating over a quart of blood and peritoneal fluid. The Fallopian tubes, palpated through the suprapubic incision, were found free and not enlarged. The suprapubic drainage gave immediate and permanent relief to the pain. During the first two weeks broken-down blood clot drained freely per vaginam. Recovery ensued.

Plymouth.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Hypernephroma.—Latent Addison's Disease.

A MEETING of this section was held on Feb. 23rd, Dr. SAMUEL WEST, the President, being in the chair.

Dr. FREDERICK TAYLOR read a paper on a case of Multiple Pulsating Tumours Secondary to Hypernephroma. The paper appears in full at p. 483.

Dr. F. PARKES WEBER read a paper on a case of Bilateral Hypernephroma with Secondary Thrombosis of the Inferior Vena Cava and Terminal Uræmia. The case was that of a man, aged 49 years, whose suprarenal glands and kidneys on both sides of the body were infiltrated with a form of adrenal carcinoma or hypernephroma. There were likewise secondary nodules of the new growth in the liver and lungs. Venous thrombosis, commencing perhaps in the veins of the greatly diseased and enormously enlarged left kidney, involved both renal veins and both hepatic veins and the whole length of the vena cava, the clot extending continuously from the iliac veins below to the heart above. The upper end of the thrombus projected into and partially occluded the right auricle. The blood clot, examined microscopically close to the heart, was found to be secondarily infiltrated by the malignant tumour. The patient died from uræmia and almost complete anuria. It was remarkable that the patient lived so long as he did, and that his urine, in spite of the involvement of his kidneys, was passed in fair quantity and contained very little albumin till a few days before his death. The complete venous thrombosis of his best (the right) kidney doubtless brought about the final, almost complete, suppression of urine. As in other cases of thrombotic obstruction of the inferior vena cava, the enlargement of the superficial veins in front of the abdomen was a striking feature during life.¹ Dr. Weber said that in regard to the occurrence of thrombosis of the vena cava inferior, secondary to malignant disease of abdominal viscera, Dr. Herbert French had recently described and figured a very remarkable and instructive case in the Transactions of the Medical Society of London,² under the following heading: "Carcinoma of the Left Kidney, with continuous clot extending from the kidney along the left renal vein and up the inferior vena cava into the right auricle, and producing an intracardiac polypoid mass which led to tricuspid stenosis of the ball-and-socket type, the clot being infiltrated with carcinoma of the same type as that in the kidney itself." Dr. French's patient was a man, aged 45 years, whose chief symptoms were attacks of abdominal pain, with alternating diarrhoea and constipation, associated with pyrexia; the liver and spleen were enlarged, but there was no oedema of the legs. Dr. French stated that

¹ Cf. F. P. Weber: Ueber die Traumatiscche Thrombose der Vena Cava Inferior, Münchener Medicinische Wochenschrift, 1913, Band ix., p. 1434; also Transactions of the Life Assurance Medical Officers' Association, London, 1913, p. 254.

² French: Transactions of the Medical Society of London, 1912, vol. xxxv., p. 243.

various diagnoses were favoured during life, but the correct one was only arrived at in the post-mortem room. Likewise in the same connexion Mr. S. G. Shattock had referred him (Dr. Weber) to "a case of carcinoma of the testis in a young man, with metastatic deposits lying free in the heart and in the inferior vena cava," described by Dr. A. A. Kanthack and Mr. T. Strangeways-Pigg in the Transactions of the Pathological Society of London for 1897.³ The suprarenal glands, amongst the various organs of the body, exhibited a noteworthy peculiarity, to which his attention had been drawn by Mr. Shattock—namely, that they were fairly equally liable to tuberculosis and malignant disease. In both diseases the affection was not rarely bilateral. It was notorious that suprarenal tuberculosis was frequently bilateral, and indeed both adrenal glands might show extensive caseous changes without there being much evidence of tuberculosis in other organs of the body. Benign adenomata of the adrenal cortex were not rarely bilateral, as in a case which he had described in 1906.⁴ W. Roger Williams, in his book on "The Natural History of Cancer" (London, 1908, p. 301), referred to bilateral tumours of the adrenal glands in the following words: "In infants and adults bilateral forms of malignant adrenal tumours are occasionally seen. Rolleston and Marks, in 26 tabulated cases at all ages, met with two instances of this kind. A case which conclusively proves the bilateral origin of the disease had been recorded by Breton and Looten. The patient, a woman aged 57 years, having suffered for some time from symptoms of adrenal insufficiency, with a painful intra-abdominal tumour, died suddenly. At the necropsy each adrenal was enormously enlarged by small round-celled sarcomatous growth, which had secondarily invaded and caused enlargement of each corresponding kidney and the adjacent mesenteric glands. No other organs were involved. Similar cases have been reported by Fränkel, Woolley, Suchardt, and others. Adenomata of both adrenals have also been met with (Warthin)."

Dr. WEBER also read a paper on a case of Latent Addison's Disease revealed by necropsy following death from pneumonia. The patient, aged 35 years, was admitted to hospital in November, 1914, with the physical signs of pneumonia of the lower lobe of the right lung, and crepitation (without dullness) at the base of the left lung. His sputum had a "rusty" colour and contained capsulated diplococci. He was very obese and had "striae atrophicae" (analogous to the "linea albicantes" of women after pregnancy) over the abdomen, as often seen in exceedingly corpulent individuals. These he remembered to have been present for the last 12 or 13 years. His legs were oedematous and there were purple patches of cutaneous ecchymosis about his ankles and on his feet. He had arrived in London about ten days previously on his way home from Buenos Aires, where he had been ill for some time. In September, 1914, in Buenos Aires, he had had, according to the account, a transient attack of right hemiplegia. The doctor there had said that "his heart was very weak" and had advised his return to Europe. In London he had become acutely ill with orthopnoea and bloody expectoration. During the first four days of his illness in London his temperature was said to have been 102°-103° F., and later on 98°-100°. There was a history of malaria in North Argentina about two years ago. He was said to have had tuberculous pleurisy at about 18 years of age and jaundice and kidney disease during childhood. There was no history of alcoholism or venereal disease. It should be stated that on admission the patient had a peculiar yellowish tint noticeable in the skin of his face, though his conjunctivae were not jaundiced. During the first week under treatment in the hospital the patient's condition seemed not to get worse, though there were objective and subjective signs of great general debility. His temperature was nearly always between 98° and 99·5°; his respirations were at first 40-44 in the minute, but afterwards fell to 32-34; the pulse was at first 80-84, but later on mostly 100-108. The urine was of specific gravity 1012, averaging 1200-1800 c.c. in the 24 hours, and yielding a "thick cloud" of albumin; a few granular tube-casts and uric acid crystals were found in

it by microscopical examination. The signs of pneumonia at the lower lobe of the right lung persisted, but more crepitation than previously came to be heard, as if a certain amount of "resolution" were taking place. Some petechial or ecchymotic patches about the ankles ulcerated. The patient complained a good deal of abdominal pains, and said he had suffered from abdominal pains in Buenos Aires as well as on the ship during the voyage to England. In regard to treatment, strychnine, digalen, and a little alcohol were employed, and xeroform powder was used for the feet. The abdominal pains and discomfort were much relieved by hot hip-baths. Later on the temperature sometimes reached 100°, or slightly higher. The brachial systolic blood pressure was 155-170 mm.Hg. The superficial ulceration of the ecchymotic patches (superficial cutaneous gangrene) about the ankles and some superficial ulceration about the sacrum required much attention. The sputum was of the "prune juice" type, with a brownish tinge. Fifteen days after admission Dr. Weber tapped the right pleura and removed a little fluid, which was not quite clear and which by microscopical examination was found to contain a considerable number of pus cells. The specific gravity of this pleural effusion was 1010, and it "went solid" with albumin on boiling. Three days later he again tapped the right pleura and withdrew 1300 c.c. of a fluid somewhat turbid with pus cells. After another four days he tapped the right pleura for the third time and found the pleuritic effusion (about 1500 c.c. removed) distinctly purulent, foul-smelling, and swarming with cocci. There was therefore a definite empyema, and on the following day Dr. Zum Busch kindly operated under local anaesthesia, resecting a portion of a rib. The patient, however, grew gradually more feeble and died in a few days. In regard to the necropsy and microscopical examination Dr. Weber said that he was indebted to Dr. Hans Schmidt. The heart (weight 25 oz.) was much hypertrophied, especially the wall of the left ventricle; there was no valvular disease or ante-mortem thrombus. There were only slight atheromatous changes in the thoracic and abdominal aorta. A specimen of blood serum from the post-mortem heart's blood gave a definite negative Wassermann reaction for syphilis. The right lung (side of the empyema) was collapsed and there was an abscess or gangrenous patch in the lower lobe. In the left lung there was hypostatic congestion, and a microscopic section from the lower lobe (where crepitation had always been heard during life) showed the presence of chronic catarrhal changes. There was no ascites. The liver (weighing 106 oz.) was greatly enlarged, and had a fatty, pale yellow appearance. The upper surface was fixed by a few adhesions to the diaphragm. Microscopic examination showed an extreme degree of fatty change (fatty infiltration of the hepatic cells, doubtless associated with a degenerative condition of the cells themselves). The spleen (weight 6½ oz.) was rather soft and the capsule was attached by some perisplenic adhesions; a few pale patches observed under the capsule were shown by microscopic examination to be small infarcts. The pancreas appeared normal. The kidneys (weighing together only 8½ oz.) were rather small, and macroscopically and microscopically showed typical chronic interstitial nephritis. In regard to the other organs, the thyroid gland appeared normal; the testes were small for the patient's size, the weight of these organs (including epididymis) from both sides together being only three-quarters of an ounce. Both suprarenal glands were enlarged (the left one being about the size of a hen's egg, the right one as large as a goose's egg) and transformed into soft, pale, friable masses—evidently necrotic caseous material, including the whole of the medullary substance—covered only by a thin layer of living cortical substance. Further microscopical examination confirmed this. In the non-necrosed area were scattered foci of inflammatory small-celled infiltration; no tuberculous giant cell systems were found. It is noteworthy that the post-mortem examination showed no tuberculous changes, except in the suprarenal glands, and even in them the tuberculous nature of the caseous change was not definitely proved by microscopic examination. Dr. Weber remarked that in this case the old chronic interstitial nephritis with cardiac hypertrophy evidently counteracted to some extent the tendency towards very low blood pressure, characteristic of typical Addison's disease of the suprarenal glands. On the other hand, the patient's objective and subjective

³ Transactions of the Pathological Society of London, 1897, vol. xlviii., p. 139.

⁴ F. P. Weber: Symmetrical Adenomata of the Suprarenal Glands and Extreme Sclerosis of the Aorta, Transactions of the Pathological Society of London, 1906, vol. lviii., p. 338.

state of debility was characteristic, as well as doubtless the fragility of his skin and the imperfect general reaction of his organism towards infectious disease. He believed in this connexion that prolonged convalescence or a condition of unusual asthenia following ordinary attacks of infectious diseases might indicate the presence of latent disease of the suprarenal capsules (latent Addison's disease). In December, 1899, he saw a young man, aged 24 years, suffering from a pyrexial attack, which was regarded as influenza. The illness was accompanied by some pleurisy at the left base, and was followed by remarkable debility. There were several medical consultations about him, and he gradually apparently recovered. Later on, in 1901, he was attacked by malaria—apparently not a particularly severe attack—and was sent up to the hill station of Darjeeling. There his condition was one of great asthenia without fever, and he had syncopal attacks, in one of which he died. Some cutaneous pigmentation was observed in India, though none had been noted during the illness in England. A most careful post-mortem examination was made, and in a report sent over to a life assurance office in England it was stated that the suprarenal glands contained yellow, caseous material and calcareous plates and were matted together across the aorta. It seemed to him (Dr. Weber) that suprarenal disease (latent Addison's disease) was probably the true explanation of the asthenic condition connected with the previous illness in England.

SECTION OF ELECTRO-THERAPEUTICS.

Discussion on the Electrical Treatment of Wounds, Sinuses, Frost-bite, and Sprains, Considered more Particularly in Relation to the Present War.

A MEETING of this section was held on Feb. 19th, Dr. W. IRONSIDE BRUCE, the President, being in the chair.

Dr. KNOWSLEY SIBLEY introduced the discussion with a paper dealing with the general principles of ionic medication.

Dr. W. J. TURRELL read a paper dealing with the treatment of sprains and frost-bite, in which he advocated the use of the static form of electricity locally applied, and in certain instances diathermy. He gave instances where gangrene following severe frost-bite seemed imminent, yet with careful and persistent treatment this was averted, or if any local death did occur it was very much less than the appearances indicated as most likely to follow.

Dr. F. HOWARD HUMPHRIS related similar experiences.

Dr. CHARLES RUSS, in an important communication, said that it gave him pleasure to make a contribution to the study of the treatment of suppuration by active current. He believed that with a fuller recognition of the factors at work in suppuration the electric current would be found a very potent remedy. He first approached the subject at the bacteriological laboratory in 1907-09, and he believed there had lately been a realisation of the significance of bacteria in suppuration. On the one hand were the bacteria, associated with their toxins; of the poisonous nature of the latter members did not need to be reminded. Volume for volume, the strongest ordinary chemical antiseptics were poor in comparison. On the other side of the problem was the patient's resistance, and that consisted in changes in both volume and composition of the blood-supply, and in particular the emigration of polynuclear cells. Only when the latter had migrated to the site of a suppurating lesion were they known as pus cells. During the last three or four years he had been studying particularly the effects of electrical currents applied in a special way, and he hoped to show reason for his belief that there were factors directly antagonistic to the bad factors in suppuration which were assistants to the patient's resistance. The types of suppuration about which he would speak—and they were the types he had treated—were cases of ordinary chronic ulcer, such as varicose ulcer, acute septic wounds, usually due to trauma, and infected mucous membranes; in all those cases the factors he had mentioned were at work. In 1909 he had the privilege of reading before the Royal Society¹ a paper on some purely laboratory experiments and observations he had made on the movements of bacteria in fluids—i.e., during electrolysis. The type of organisms he studied were the disease-producing ones: staphylococcus pyogenes aureus, the commonest cause of sepsis, colon bacilli, typhoid bacilli, and other

leading groups. Taking the staphylococcus aureus as an example, one took a 24-hour pure culture of that on agar, put it into a tube with 2 per cent. sodium chloride, and emulsified it to keep the organisms alive. The current was then passed through by means of submerged electrodes. Certain facts then emerged. (Slides were here shown.) After a certain period it would be found that the staphylococcus had gone over until those microbes were completely aggregated at one of the electrodes; in the case under consideration it would be the anode. All the experimental work, which he did on the bench before approaching a patient, showed this emigration of bacteria, whether the bacilli worked with were dead or alive; it was due to the affinity between the moving ion and the bacterial envelope. Nearly all organisms in sodium chloride would go to the positive electrode. It came out in a very simple experiment which anyone could do on the bench. By passing a current of only three or four milliamperes the effect would be manifest in 20 minutes. He would not now enter into what were the variations in the different fluids. The second important fact was that if one withdrew a portion of the accretion after 20 minutes a large number of the bacteria would be found to be dead, showing that the procedure was lethal to bacteria. Two important facts came out when one was actually treating cases. The lethal effect could be applied against the bacteria in the focus of suppuration. He would instance the first case he treated as an illustration. It was a case of varicose ulcer, chosen because the lesion was easily visible and its varying size could be accurately measured; moreover, the technique could be well adapted to the leg. By the time the ulcer was chronic he found the bacteria were usually mixed; some of the ulcers were four inches square. His object was to draw the bacteria out of the granulations. He fitted a glass vessel over the ulcer and made it watertight with plasticine. He then filled it with a solution of sodium chloride and submerged an electrode, in that way establishing in the human being what he had been doing in the case of the test tube. Organisms left the granulations, as the current flowed from the indifferent electrode. Thus, over the lesion one brought a suitable column of fluid, and through that one arranged a circuit in such a direction that the bacteria would leave the lesion. He need not remind members of the perfect cellular contact which a conducting electrode made with all the irregularities of a limb. Sodium chloride was not looked upon as a powerful antiseptic, therefore the effect produced was not that of fluid antiseptics. He would like to mention an interesting control experiment which forcibly reminded him of the lethal effect. He wanted to prove whether the organisms were actually drawn out of the granulations, because, of course, no one could see them go. In the U-tube experiment there could be no doubt about the mass movement of the organisms; but on the limb one could not see it. He therefore, before treatment, put on clear saline, and stirred it up so as to get emulsion, and put $\frac{1}{4}$ c.c. of it on to an agar plate, and he intended to count the colonies. After passing the current he thought he would shake it up again to see if he had twice or thrice the number, the inference being that the multiplication was due to having drawn them out. He got a lot of colonies on the first plate—a thousand or so—while in the second he got nothing, showing that they were all dead. All the ulcers which he treated in that way were healed. His friend, Mr. C. R. C. Lyster, had treated a series of septic fingers, what were known as "casualty hands," the most severe half-dozen which the house surgeon could pick out for him. Pus was welling out from those terrible digits. The 2 per cent. sodium chloride was arranged over these lesions, and not one of the cases came to amputation, the result which often happened. Mr. Lyster, at that stage, was bolder even than he (the speaker) was, for he showed great adaptability in applying a column to the suppurating surface of the eye, corneal ulcers and conjunctivitis; nothing but the 2 per cent. saline fluid was used. The ulcers treated were pale, indolent, and of the washleather type, thoroughly anæmic, but at the end of 15 minutes from the current being passed the vessels were turgid and strongly congested, even to the point of oozing blood. That, of course, was in favour of the patient, for one had produced an effect equal to that of the Bier's bandage, the benefit of which was due to the enhanced blood-supply, the improved plasma flow,

¹ THE LANCET, July 3rd, 1909, p. 2.

and the increased phagocytosis. But the method he was describing could be used for parts of the body in which a bandage could not be applied. He had seen the good effect demonstrated in a distressing condition which he had studied more than anything else—namely, cystitis.² When he read his first paper a surgeon in the room said, "Why don't you draw bacteria out of a man's bladder who has got cystitis, for there is a suppurating mucous membrane which is accessible to a column of fluid?" A column of fluid could be put in, an electrode could be let down as a rubber catheter, and a belt carrying a metal core encircled the lower hip, and in that way one enabled the treatment to be applied to the whole suppurating and inflamed surface. He had taken old-standing cystitis cases of years' duration, whose case-books showed a monthly attendance at hospital, or perhaps fortnightly, and in which presumably all kinds of treatment had previously been applied. In all he got the same behaviour—namely, a decline in pus formation, and a great improvement in the symptoms, such as frequency of micturition, and an abatement of the symptoms which had been due to the chronic absorption of coli toxin. After an extensive experience in urine analysis, he knew that organisms in urine from cases of cystitis were seldom seen in phagocytosis; they were seldom seen inside the pus cells. But after treating cases electrically in this way he had some remarkable films showing polynuclear leucocytes literally stuffed with bacteria. Another point was that in chronic suppuration he had seen colon bacilli undergoing morphological change. After treating certain cystitis cases, keeping at the same time an eye on the urine, he found the bacilli becoming definitely longer and stringy, and changed in respect of their reaction to the standard Gram staining, showing an alteration in the chemistry of the protoplasm. When the bacilli attained this increased length they no longer had anything like the same virulence, and there was then no pus formation, or at all events very little. Pus disappeared from the urine after this treatment, and though he had watched cases for 12 months afterwards it had not reappeared, and the organisms remaining were still elongated. He was interested to see whether by passing a weak current through a tube of bacilli the bacilli could be elongated, and that happened, though not so long as in the cases treated. He had also done a considerable amount of work in the study of gonorrhœa in the male on the same principle. He desired, in conclusion, to project on to the screen a couple of charts from very chronic cases of cystitis. Although they showed only the frequency, the improvement in that respect was *pari passu* with the improvement in other respects, showing that the method truly overcame the causative agent at the back of the suppuration. The first case was at St. Peter's Hospital, and Mr. J. G. Pardoe handed the patient over to him in, he believed, an amused state of mind, for the man had been attending seven years, and had been getting out of bed to pass water five or six times nightly. The man was aged 56, a civil servant, dull, and therefore thoroughly reliable. He cross-examined the patient to get the clear facts. There were staphylococci, theropy masses, and the scalding and difficulty in micturition, as well as sleeplessness. The method described was applied to him, and the frequency came down, as the chart showed. One night it rose to five times again, but as it was Sunday he (the speaker) focused his attention on the prostate, with good results. The catheter came out stuffed with pus, evidently from the prostatic duct. The frequency came down, and the next night he got out only once. Treatment was finished on April 3rd, 1914, since when he had had no treatment. That, therefore, was a very good case. His urine was not yet free from staphylococci, but it was free from pus. The other case he wished to refer to was an acute one of six weeks' duration. He gave a course and then left him alone. It seemed to be going to relapse. When the frequency got to five times a night he decided to interfere and gave one administration for an hour, and he now had clear nights. At present he could not give more clinical material, but he hoped the remarks would be of service, because if electrical treatment were in future applied to suppuration he thought the method would be profoundly respected by surgeons.

Dr. T. J. BOKENHAM desired to say that his experience confirmed that of Dr. Turrell and Dr. Humphris in regard to

the electrical treatment of frost-bite and sprains. For the interference with local metabolism, such as trench frost-bite entailed, there was nothing to equal the effects of the static breeze discharge, but there must be a sufficient amount of discharge to cause benefit. He would say the same for some cases of indolent ulcer and obstinate sinuses, such as he had had to treat in the South African War cases, and at that date he was convinced that static electrical treatment was much to be desired. In the treatment of deep sinuses he had formed a good opinion of the value of ionisation, using sufficiently small currents, by means either of succinamide of mercury solution or with zinc electrodes amalgamated with mercury.

Dr. G. B. BATTEN desired to express his gratitude to Dr. Russ for his suggestive paper. That gentleman's experiments explained why Dr. Sibley got the good results which he detailed. Might it not be that when Dr. Sibley used zinc sulphate and zinc chloride he placed the limb practically in a positive bath, and immersed the rest of the body in a negative pole? Thus, while aiming at driving zinc ions into the tissues, he was also aggregating the deleterious microbes around one pole. Reasoning from that, Was it possible to get as good results with the substitution of a 2 per cent. salt solution for the fluid he used in the same way as Dr. Russ employed?

Mr. LISTER said the section was deeply indebted to Dr. Russ for making a great advance in knowledge concerning electrolysis. He had had the opportunity of treating a dozen or more cases on the lines Dr. Russ laid down, and he could speak with definite knowledge that quite as good, if not better, results could be achieved with simple salt solution so long as one employed a solution, not a pad. A solution admittedly could not be applied to all parts, but he had succeeded with legs, fingers, and eyes, and he exhibited the identical cups he used for those cases. Twenty years ago electrolysis was used with pads for driving in zinc, mercury, and copper, but the bacteriology of the matter had not been entered into until Dr. Russ did the work he had spoken of for the Royal Society. All present would feel deeply indebted to him for having come to the meeting to explain the process.

Dr. REGINALD MORTON wished to associate himself with the remarks of appreciation on the work which Dr. Russ had done; it was one of the most important communications which had been made to the section for a long time. It certainly explained many points concerning ionisation which were helpful. He hoped the record of Dr. Charles Russ's work was easily accessible, as he wished to study it closely. Dr. Sibley, in his remarks, had said that he used carbolic acid, lysol, and such substances; but it was new to him (Dr. Morton) that such substances would ionise at all. He would mention a practical point because last autumn he had an experience which caused him trouble. It was a case of ischio-rectal sinus, rather deep, which would not heal, although various methods of ionisation had been applied; the patient refused operation. What he finally succeeded with was an adaptation of an old method of getting through the chronic stricture of the urethra, using filiform bougies; and one of these found its way into the bladder. This method he applied to the sinus, using many zinc wires, and wherever he found a side track he placed a zinc wire into it, so that he got a wire in every side pocket. After that was accomplished healing occurred after a single application. Many sinuses following upon lacerated wounds were likely to be of the same nature, and it occurred to him that this hint might prove useful to some members. In view of the interesting facts related by Dr. Russ it was more than likely the case was cured not so much by driving the zinc ions in as by drawing the bacteria out and subjecting them directly to the lethal action of the electric current.

Dr. E. P. CUMBERBATCH said that in the treatment of sinuses his method was to pack the sinus with a zinc rod and connect it with the positive pole. In the cases he had been called upon to treat at St. Bartholomew's Hospital the method had been successful in some, but in others it had failed. When confronted with failure it was necessary to remember three things. First, the sinus might not be clear of foreign bodies. In one case a sinus was discharging a quantity of pus, and the orthodox zinc rod method failed. The case was sent back to the surgeon, who opened the sinus and found a piece of khaki in it of the size of the finger tip, which had not been seen in the radiograph. After the removal of that the sinus healed up at once. The second

² THE LANCET, Feb. 14th (p. 447), and Oct. 31st (p. 1040), 1914.

point was, was the sinus a straight one? If the sinus surfaces were not all touched by the rod, pus would still form. In one such case he had success by using a perforated metal rod, and very fine brass tubing as the positive electrode. He first washed out with water and saline, then zinc, and after passing the tube one got the disinfecting action of copper and zinc ions. Thirdly, one must make sure that the zinc used was a germicide. In many cases he found it was not, because the ulcer or sinus had refused to heal. As an alternative he had successfully used a solution of iodine in potassium iodide—1 per cent. iodide containing iodine dissolved to make it an additional 1 per cent. strength. It was not a case of simple solution of iodine and potassium iodide, but a chemical compound was formed, probably a tri-iodide. It could be proved that the newion entered when the electrode was connected with the negative pole. By placing a solution of this in contact with the skin the skin became discoloured a faint yellow, but by connecting the solution with the negative pole the skin became an intense orange or vermillion. Recently he had a case of ulcer on the knuckle which refused to heal with surgical treatment or with zinc ionisation, but at once yielded to iodine dissolved in potassium iodide. That being connected with the negative pole was one answer to the question raised by Dr. Batten. Another solution which had a germicidal action was sodium salicylate, and he had had a case which healed up with that after failure had been met with even from iodide. Another point he wished to mention in connexion with the treatment of sinuses and wounds was the use of X rays. Chronic suppurations and sinuses which had persisted for a long time and resisted other forms of treatment had yielded to X rays, and here again help would be derived by placing along the sinus a silver or tin rod. With regard to the treatment of frost-bite, it was first necessary to have an exact definition of "frost-bite," so that all who used the term would be referring to the same condition. He had had two cases of frost-bite in the feet of the anæsthetic type, and he had tried one foot of a patient with one method, and the other foot of the same man with another. He applied to one the rhythmic sinusoidal current to the worst side of one case, and to the other he applied the galvanic current which had been made to wax and wane. The foot treated with the sinusoidal current recovered much sooner than the other. In another bilateral case he treated both sides by diathermy, and the improvement in looks and in feeling began with the first application. In diathermy he started off by using moist pads soaked in salt solution, but later he placed pads on the skin which had had a little preliminary dabbing and the result was that there were fewer burns than by the other method. He had produced two bad burns by using a damp cloth pad in surgical diathermy, because the salt solution was converted into steam and this caused two large areas of necrosis; however, the case was moribund from malignant disease. Sprains in St. Bartholomew's students after football he found yielded to the simple galvanic current.

The PRESIDENT said he was sure members had derived a great deal of instruction from the discussion, and he could not close the meeting without saying how much he had been interested in Dr. Russ's remarks setting forth his own method of dealing with bacterial infection. He agreed with Dr. Morton that there was something entirely new in it which was likely to change the prevailing views concerning the electrical treatment of disease.

SECTION OF DERMATOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 18th, Dr. J. J. PRINGLE, the President, being in the chair.

Dr. GEORGE PERNET and Dr. J. M. H. MACLEOD exhibited three interesting cases of Dermatitis Artefacta in women. In one of Dr. Pernet's two cases the left arm and shoulder had been involved for more than three years; in the other the front of the chest only was affected; in neither case was there any clue to the vulnerant employed. In Dr. MacLeod's case only the back of the right hand was affected, and its production had been preceded by the excision of a ganglion from the part.

Dr. J. H. SEQUEIRA showed a case of an Artificially Produced Eruption in an old soldier, who had presented a

similar condition on two previous occasions. The lesions somewhat simulated an eruption due to the halogens, but their primary bullous nature, lack of symmetry, and linear configuration all pointed definitely to their artificial production, a view which was unanimously shared by the section.—Mr. H. C. SAMUEL, Dr. GRAHAM LITTLE, Dr. PARKES WEBER, and Dr. PERNET discussed the psychology of persons who produced feigned eruptions, referring especially to the views of Freud on the subject.

Dr. LITTLE exhibited a case of Multiple Large Subcutaneous Tumours of 15 years' duration in a man, aged 49, which were asserted to have started from the seat of intramuscular injections of a phosphorus compound administered in Italy. The microscopic examination showed proliferative changes in the fatty tissue in addition to fibromatosis.—The case was discussed by the PRESIDENT, Dr. PERNET, and Dr. MACLEOD.

Dr. LITTLE also showed an old man with a typical Rodent Ulcer behind the left ear and Squamous Epitheliomata on the backs of both hands. He discussed the relationship between the two conditions, supporting the view that the term "rodent ulcer" merely connoted a clinical group of epithelioma.—The subject was fully discussed both from the clinical and pathological point of view by Dr. MACLEOD, Dr. SEQUEIRA, Dr. H. G. ADAMSON, and Mr. J. E. R. MACDONAGH.

Mr. MACDONAGH described and showed microscopical slides of a probably undescribed Protozoal Disease of the Skin which came on after an injury to the elbow in India.

Dr. S. E. DORE brought forward a case of Favus of the Glabrous Skin on the chin and neck of a young girl. The disease was probably of mouse origin, and this view was supported by the cultures exhibited.—Dr. ADAMSON thought the cultures resembled those of Sabouraud's trichophytic favus.—Dr. MACLEOD attributed the unusual character of the cultures to the medium on which they were grown.—Dr. DOUGLAS HEATH, Dr. LITTLE, and Dr. J. L. BUNCH also spoke.

Dr. KNOWSLEY SIBLEY showed a case of Morphœic Scleroderma, chiefly in the clavicular regions, with some patches of Alopecia Areata of the scalp in a middle-aged woman. He discussed the relation of the disease to the so-called "white-spot disease" and to generalised scleroderma.—Dr. BUNCH referred to the obvious differences between guttate scleroderma and atrophic lichen planus, and also to the views held in France as to its possible tuberculous nature.—The PRESIDENT referred to the relationship frequently existing between morphœa, alopecia areata, and disease of the thyroid gland. He pointed out that the patient had von Graefe's sign well marked. His experience was that such cases seldom or never eventuated in generalised scleroderma.—Dr. LITTLE and Dr. PERNET reported good results from the administration of thyroid extract.—Dr. WEBER, Dr. SEQUEIRA, Mr. SAMUEL, and Dr. A. EDDOWES also spoke.—Dr. SIBLEY, in replying, remarked that radiant heat had, in his hands, proved of value in such cases.

Dr. H. W. BARBER exhibited a case of Parakeratosis Variegata of about eight months' duration in a woman aged 38. The lesions were situated on the legs, where they closely resembled lichen planus, and on the face and neck, where their reticulated and riband-like atrophic band arrangement was characteristic.—Mr. SAMUEL referred to the presence of itching, which was generally considered to be unusual.—The diagnosis was confirmed by Dr. MACLEOD, the PRESIDENT, and Dr. ADAMSON, all of whom considered treatment unsatisfactory in these cases.

Dr. SEQUEIRA exhibited a case of Lichen Planus Hypertrophicus of 25 years' duration.—Dr. LITTLE advocated the use of carbon dioxide snow after erosion; Dr. ADAMSON advised the vigorous application of silver nitrate stick; Dr. HEATH reported good results from X rays supplemented by firm elastic pressure; Dr. DORE had had success with X rays; while Dr. DUDLEY CORBETT suggested ionisation followed by X rays.

Dr. CORBETT showed a very remarkable case of Nævus Linearis, which was confined to the right side except on the face.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in the anatomical department of the Queen's University of Belfast on Feb. 25th, Dr. J. S. Morrow, the President, being in the chair.—Mr. P. T. Crymble read a

paper on Instantaneous Skiagraphy as a means of Recording Normal and Abnormal Conditions of the Thorax and Abdomen.—Mr. Crymble and Dr. Foster Coates showed skiagrams of Phthisical Chests.—Mr. Crymble exhibited stereoscopic plates of the skull and of a dislocated shoulder-joint, and demonstrated apparatus for (a) instantaneous skiagraphy, (b) orthodiagraphy, and (c) localisation of foreign bodies.—Mr. A. Fullerton read a paper on the Mechanism of Enlarged Prostate, with some hints on the diagnosis and treatment, illustrated by lantern slides.

HARVEIAN SOCIETY OF LONDON.—A meeting of this society was held on Feb. 25th at the Stafford Rooms, Titchborne-street, Dr. Edgar G. Bulleid, the President, being in the chair.—Dr. E. G. Graham Little read a paper on Rodent Ulcer: its Nature and some Methods of Treating it. He pointed out that rodent ulcer had been described by Jacob in 1827 in terms which remained an admirable description of the disease, and he considered that much undesirable confusion had been produced in the modern conceptions of it which attempted to make of what was essentially a clinical group, and as such of much convenience, a microscopical entity, concerning the content of which there was no agreement. It was better to go back to the clear idea of Jacob and to regard rodent ulcer as a clinical term embracing all cases of ulceration of epitheliomatous tumours in which the cardinal symptoms of slowness of ulceration and absence of glandular invasion were present. He gave a clinical analysis of somewhat over a hundred cases of rodent ulcer occurring in his hospital and private practice. This series showed a very slight preponderance of males, which probably represented a usual experience, but in Bowlby's 66 cases there had been twice as many men as women, whereas in Dubreuilh's 166 cases there had been nearly twice as many women as men. As regards age, concerning which there was also very divergent experience, the largest number of cases had occurred between the ages of 40 and 60. He described results of treatment by several methods, and had personally come to prefer that of freezing with carbon dioxide, which he was satisfied compared quite favourably with any other method both as regards safety of application, convenience and rapidity of treatment, and permanence of removal. It was, of course, a truism to say that some types of rodent ulcer advanced in spite of all treatments, and he quoted several cases in which all the accepted methods had been tried in turn without avail. Dr. Little afterwards showed three cases of rodent ulcer which had been cured by means of the actual cautery, zinc ionisation, and carbon dioxide snow respectively. He also exhibited a case of probable rodent ulcer of the nodular variety.—Mr. Haldin Davis, who advocated excision whenever possible, Mr. V. Zachary Cope, and Dr. Frederick Langmead discussed the paper.

In the Section of Epidemiology and State Medicine of the Royal Society of Medicine to-day (Friday, March 5th), at 8.30 P.M., Dr. J. C. Ledingham will re-open the adjourned discussion on the Epidemiology of Cerebro-spinal Meningitis. This will relate mainly to the interpretation of the features of cerebro-spinal meningitis epidemics brought out at the opening meeting and to preventive measures. Members of other sections are invited to attend.

BRITISH HOSPITAL FOR MOTHERS AND BABIES.—The amalgamation of the British Lying-in Hospital from Endell-street with the Home for Mothers and Babies at Woolwich is now complete, the scheme having been sealed by the Charity Commissioners on Jan. 29th. The freehold of a site, just under three acres in extent, at Woolwich has been purchased, on which the new charity hopes to build, with as little delay as possible, a hospital for the reception both of lying-in patients and patients suffering from any kind of complications relating to maternity, either before or after child-birth. The committee has already £12,000 in hand for the purpose, but double this sum is needed before the project can be carried into full effect. The hospital is to be known as the British Hospital for Mothers and Babies, and will serve as a national training school for district midwives.

Reviews and Notices of Books.

Squire's Pocket Companion to the British Pharmacopœia.

By PETER WYATT SQUIRE. Second edition. London: J. and A. Churchill. 1915. Pp. 1040. Price 10s. 6d. net.

THE first edition of Squire's Pocket Companion appeared in 1904, when it was found that the older Companion was growing too bulky for convenience. Judicious condensation was therefore effected, the size of the page was reduced, smaller type and thinner paper being used. These changes facilitated the production of a volume which by size and weight might conceivably be termed a pocket companion. This book was specially designed for the medical profession, and contained information relating to such matters as commonly arise in the ordinary course of prescribing and dispensing. The general features of the book are already familiar to many of our readers. In alphabetical order of arrangement the monographs include a description of each drug with its usual method of preparation, to which are added notes on solubility, medicinal properties, prescribing notes, reference to incompatibles, a list of official and unofficial preparations, and an enumeration of antidotes for drugs possessing toxic properties. Comparison with the former edition is facilitated by special indication when the monograph relates to a new official substance; several of these monographs have been referred to, and the information afforded appears to be adequate.

Considerable space has been devoted to salvarsan, but although the chemical composition is clearly indicated by a formula and by a name consisting of 40 letters and three hyphens, nothing is said of the mode of preparation; we are told that "it occurs as a pale yellow amorphous powder." In the 13 following pages, however, nearly all that is important connected with salvarsan has been summarised, with thoroughly useful references to the literature of the subject. The methods of employment by intravenous, intramuscular, and subcutaneous injection are described in great detail, and the prescribing notes and special cautions are usefully appended. Prescribing notes of similar value are to be found in connexion with many other monographs, of which those relating to formaldehyde, iodine, menthol, and the pituitary gland call for mention.

The doses of the substances are given in both the imperial and metric systems, and there are tables showing the imperial weights and measures with the metric equivalents. In these the Pocket Companion strikes out a line of its own, which differs from the British Pharmacopœia; minims are rendered in terms of cubic centimetres, and the convenient, and officially recognised, mils, decimils, and centimils are ignored. In the body of the book, however, we frequently meet with a new and unauthorised contraction, "ml.," the meaning of which is unexplained in the text. Another departure from the British authority consists in the annexation from the German Pharmacopœia of the maximum single dose and the maximum daily dose of remedies possessing toxic properties.

The section dealing with antitoxins, serums, vaccines, and tuberculins has been very thoroughly revised to include the most recent information.

The Pocket Companion shows evidence of considerable judicious forethought in the selection of data likely to be of service to a wide class of readers. It supplies much practical information which is necessarily outside the scope of the British Pharmacopœia, and it does not encumber its pages with the many quantitative and qualitative tests which are of secondary importance to those accustomed to assume that all the drugs supplied to their order are bound to conform with the official standard of purity. We commend the book to all our readers for the valuable qualities which we have recorded.

A Text-book for Midwives.

By JOHN S. FAIRBAIRN, M.A., B.M., B.Ch. Oxon., F.R.C.P., F.R.C.S., Obstetric Physician with charge of Out-patients and in charge of Maternity Ward, St. Thomas's Hospital; Lecturer in Midwifery, St. Thomas's Hospital Medical School, &c. With 3 plates and 104 illustrations, five in colour. London: Henry Frowde, Hodder and Stoughton. 1914. Pp. 317. Price 10s. 6d.

THIS is a much more complete and ambitious work than the usual text-book intended for midwives. As the author says, it is open to the criticism of going beyond what is required of them and by them, but he points out that the more advanced modern school of practising midwife is possessed with an insatiable thirst for knowledge, and is rarely content with what has hitherto been given in books written solely for midwives. There is also another and a better reason which he puts forward for a comprehensive book—namely, that a more educated class is now proceeding to qualify as midwives, and for some time there has been discussion as to the advisability of raising the standard of training and examination. This book is the author's contribution towards meeting the legitimate aspirations of the midwife for a higher professional education. In a general introduction a summary of the simple facts of anatomy, physiology, and of bacterial infection is given which will serve both for study and also for reference. In this way Dr. Fairbairn attempts to supply that want of knowledge of the elementary principles of physiology which forms such a handicap to the teacher.

The author, of course, is always confronted with two difficulties: firstly, what to put in and what to leave out, and secondly, how to deal with those conditions in which the midwife is told by the rules of the Central Midwives Board to seek medical aid. As Dr. Fairbairn truly observes, from time to time a midwife will be called upon to treat some complication of labour without the assistance of a medical man, and unless she knows what plan of treatment she ought to adopt in these circumstances her patient may run a grave risk of losing her life. For this reason in many of the complications of labour a mode of treatment suitable to be undertaken by a midwife is described, although the author is careful at the same time to point out to the reader that the condition is one in which medical aid must be sought. The plan adopted of quoting in the text the various rules of the Central Midwives Board wherever they apply and discussing their rationale is a very good one, and will increase the utility of the book to the midwife and at the same time enable her to understand the reasons underlying the various rules under which she has to carry on her work. The teaching we need hardly say represents all that is best in the methods of the London school, and the whole is so clearly written as to be readily understood by any intelligent student. The

illustrations are numerous and good, there is an excellent glossary, and a very full index. We are sure the book will be welcomed and appreciated by the better class of midwife, and it should prove of the greatest assistance to them both in preparing for their examinations and as a trustworthy guide in their practice.

La Guerre en Bulgarie et en Turquie: Onze Mois de Campagne.

Par le Professeur OCTAVE LAURENT, of Brussels. With 302 illustrations. Paris: A. Maloine. 1914. Pp. 384. Price 6 francs.

Professor Laurent in this book not only describes the purely surgical experiences of the operations in the Balkans during 1912-13, but pays attention also to the condition of a country in a state of war and to the general questions affecting the treatment of wounded men under the circumstances. He speaks very highly of the Bulgarian soldiery and of their courage and endurance. It is pointed out that the Red Cross organisations gave their assistance entirely to the besieging forces at Adrianople, Scutari, Janina, and elsewhere, the besieged receiving absolutely no aid—that is to say, that except at Constantinople the European neutral powers in their succour to the wounded "conducted a veritable crusade against Turkey." The first part of the book is concerned with the general condition of Bulgaria, a study of its inhabitants, and of the medico-military organisation that existed. The second part deals in detail with the surgical experiences gained during the war. This part is very fully illustrated from photographs, and forms a very valuable contribution to military surgery. Dr. Laurent concludes that for every hundred men killed and wounded the proportions, according to the nature of the missile, would be: 12 killed and 15 to 20 wounded by shell, and 8 killed and 60 to 65 wounded by rifle shot—that is to say, that in the field shell causes most deaths, but three to five times (inadvertently stated "cinq fois") as many men are disabled by bullets as by shell. The relative severity of shot and shell wounds, and the proportion of each which become infective, have been carefully investigated. Primary infection occurred in 40 per cent. of shell wounds; and in 5 to 10 per cent. of bullet wounds. Erysipelas was rare. Dr. Laurent had 18 cases of tetanus, of which 5 recovered. Cholera, dysentery, enteric fever, and typhus fever prevailed at Chatalja, Adrianople, and in Macedonia. A large number of excellent illustrations give especial value to the strictly surgical portion of the work, which treats of the author's experiences in detail, and with the clearness of exposition and logical arrangement so characteristic of French scientific literature.

JOURNALS AND MAGAZINES.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B.; ALEX. MACALISTER, University of Cambridge; ARTHUR THOMSON, University of Oxford; ARTHUR KEITH, Royal College of Surgeons of England; and ARTHUR ROBINSON, University of Edinburgh. Vol. XLIX. Third Series, Vol. X., Part II. January, 1915. London: Charles Griffin and Co. Annual subscription 21s., post free; quarterly 6s.—The present issue is a rather bulky and a very well-illustrated one, but it does not strike the reviewer as one which adds very greatly to our sum of knowledge of the human body. Of the contributions relating to normal human anatomy the most important and most interesting is that of Mr. Geoffrey Jefferson dealing with the *Canalis Gastricus*. The author has collected and standardised information upon a subject to which several teachers

have for some time been in the habit of directing attention. Mr. Jefferson deserves the thanks of anatomists for carrying his anatomical knowledge into a clinical field and confirming it by careful X ray studies; he also deserves support in his appeal for a better understanding of the very obvious functional arrangements of the muscles of the stomach.—Mr. P. T. Crymble contributes a paper on Some Factors Influencing the Position of the Small Intestine. His results are derived from the study of 56 adult subjects, of which 6 were examined in serial frozen sections.—Mr. J. S. Fraser and Dr. J. K. Milne Dickie give a very well illustrated account of a Reconstruction Model of the Right Middle and Inner Ear, and Dr. John Cameron describes the Cranial Attachment of the Internal Lateral Ligament of the Lower Jaw. Neither of these papers demands any alteration of our general conception of the structures examined.—For the rest, the contributions deal with variations and anomalies.—Mr. C. P. G. Wakely describes a case of Duplication of the Ureters.—Mr. S. V. Telfer records a case of Abnormal Disposition of the Peritoneum, the anomaly being accompanied by an extensive hernia of the intestine into a peritoneal fossa situated on the right side of the abdomen beneath the transverse mesocolon.—Congenital Variation of the Pectoral Muscles is dealt with by Dr. Elbert Clark, who records a case of entire right-sided absence of pectoralis minor, accompanied by partial absence of the costosternal portion of pectoralis major of the same side.—Two papers, one by Mr. T. B. Johnston and the other by Dr. John Cameron, deal with the Morphology of Persistent Portions of the Left Superior Vena Cava.—Dr. R. J. Gladstone and Mr. W. Erichsen-Powell describe examples of, and discuss theories to account for, Fusion of the Atlas, and Manifestation of Occipital Vertebra.—Professor W. P. Gowland gives a note on a Diarthrodial Articulation between the Clavicle and the Coracoid, and Mr. J. R. D. Holtby records a case of Partial Lobulation of the Lung by Pressure of the Vena Azygos.—An obituary notice of Charles Barrett Lockwood is bound up in this issue.

Malaria e Malattie dei Paesi Caldi. Anno V., Fasc. V. and VI. September–December, 1914. Rome: Via Farini 62.—In this issue there are three original communications on Leishmaniasis, one by Professor G. Mariani on oriental sore, with special reference to its histology, which is illustrated by reproductions of the microscopic appearances. He finds a complete anatomical identity between the cutaneous forms of leishmaniasis of Asia and of the African and European shores of the Mediterranean and those of America known under the names of pian-bois, boschyaws, and bauru ulcer. Dr. G. Pavoni investigates the biological diagnosis of the disease, and finds that the deviation of the complement invariably gives positive results in external leishmaniasis, while in the internal form the results are for the most part negative. Furthermore, the deviation is complete and constant in cured cases, while in chronic cases tending towards recovery it is often positive. It is invariably negative in children who are not the subjects of the disease, so that a positive reaction is a certain sign of a diagnosis of leishmaniasis. The antigen used was a watery extract of spleen. In this relation it is interesting to note that in the third paper, by Dr. F. La Cava, the use of strong measures by caustics, excision, and cautery is deprecated. He states that the sore, if properly protected, heals spontaneously, and, moreover, affords an immunity against the general infection.—Other communications of interest are by Dr. P. Macri on Pruriginous Dermatitis caused by the Acarus of Dry Favus; by Dr. P. Vadala and Dr. F. Arezzi on Climatic Bubo in Messina; by Professor U. Gabbi on Ankylostomiasis; and by Professor G. Boeri on Amoeboid Dysentery.

The *Cornhill Magazine* for March includes a further instalment of Sir Arthur Conan Doyle's "Western Wanderings" and of Mrs. David G. Ritchie's "Two Sinners." "Behind the Mask" is a topical poem over the well-known initials "C. L. G.," from which the last verse may well be quoted:—

He always kept a smiling face,
He never groused when he was soaking;
And in the very tightest place
Became most prodigal of joking.
He jested in the jaws of Death;
He kept at bay that grim marauder;
And with his very latest breath
Was imitating Harry Lauder.

"An Editor" writes of "A Newspaper in Time of War," and

with much psychological acuteness declares his approval of the Censorship. "It is, of course," he says, "very unintelligent—that is the source of its strength. The collective intelligence of a body of men, individually clever, is always very low, a psychological fact to which is due the success of Parliamentary Government in this country. As a race we would never endure to be governed by a man of genius—except maybe temporarily in time of supreme crisis. We tried the experiment once with Cromwell and replaced him by Charles II. and his corrupt ministers—a typically British sequence of choice. When this war is over we shall politely but very firmly shove Lord Kitchener out of the War Office and replace him by an Arnold-Forster. And we shall be right! The profoundest thing in our deep political instinct is its distrust of genius. We use it—occasionally—but we always hate it and distrust it. And we are right. Genius may win an empire, but only honest stupidity can hold one." In every department where science holds sway this is exactly the British spirit which it is hoped that the war may abolish.

THE ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD FOR 1913-14.

(Concluded from p. 382.)

II.

IN the section following that on infant life protection the medical officer deals with the question of administrative control of infectious disease, the local incidence of which was shown in March last, when the third annual statement respecting notifiable disease was issued by the Local Government Board.¹

In a comprehensive table relating to the county of London and to England and Wales as a whole the number is given of cases reported in each of the years 1911-13, together with the corresponding case rates for the several diseases.

Scarlet Fever.

The history of scarlet fever incidence in 1913 is interesting, inasmuch as it shows that although for the most part the cases exhibited the mild type prevalent in recent years, the mildness was by no means uniform everywhere. The records of 1913 confirm the experience of previous years, when in some northern areas of England scarlet fever exhibited exceptionally high fatality. In a recent epidemic in the Sunderland rural district the disease is reported to have shown a marked septic tendency, characterised by unusually severe inflammation of the throat, with enlargement of the cervical glands and rhinitis, thus indicating a reversion to the severer type prevalent in former years.

Diphtheria.

Diphtheria mortality showed in 1913 a fall of 60 per cent. from the rate of 1901. Nevertheless, the behaviour of the disease during the year was in some respects peculiar. As in the year 1912, the highest London attack-rates were reported in Woolwich and in Greenwich, the lowest in Kensington. Among other administrative counties the attacks were most frequent in Flintshire and least so in West Suffolk. In the course of the year several local prevalences of diphtheria were investigated by the Board's medical staff. Outbursts of the disease occurred in Sherborne, Dorchester, and Rochford, in all of which infection was spread mainly by personal contact. Instructive particulars are given of the investigation of an outbreak of diphtheria in South London attributable to milk infection.² In this case the difficulty of tracing the source of infection was increased by the circumstance that the milk was derived from numerous widely distributed farms in the counties of Surrey and Sussex as well as from the dairyman's own cows in London. Credit is due to the health officers of the respective districts for their prompt recognition of the cause of the outbreak, as well as for their adroitness in accomplishing its suppression. The efficiency of pasteurisation when properly employed in rendering harmless a milk contaminated by an easily killed organism like the diphtheria bacillus was abundantly proved by this outbreak. Dr. J. Priestley, the medical officer of health of Lambeth, at once resorted to this prophylactic, which apparently cut short the epidemic. Inquiry from all other sources having proved fruitless, important positive information was elicited by

¹ THE LANCET, April 4th, 1914, p. 993.

² THE LANCET, June 6th, 1914, p. 1623.

Dr. S. Child, medical officer of health for West Sussex, who detected sores on the udders and teats of some cows at a milk farm at Horsham; added to which the hands of three out of the four milkers at the farm were found similarly affected. From the sores on the hands of two of the milkers virulent diphtheria bacilli were isolated, but the swabs taken from the throats gave negative results. Consideration of all the circumstances suggests the probability that the sores on the milkers' hands were caused in the process of milking by contact with the sores on the teats of the cows. On this hypothesis, the explanation of the outbreak appears to be that sores on the cows' teats became infected with diphtheria from some unknown source, and that the infectivity of the milk for its human consumers was increased by accidental infection of the milkers' hands from the diseased teats. The extreme virulence of the infective organism is proved by the fact that in the case of one of the milkers affected the condition of the ulcerated finger was such as to require amputation. The operation having been performed, the amputated finger was sent to the Clinical Research Association with the result that a virulent diphtheria bacillus was isolated, which on inoculation into a guinea-pig caused the death of the animal in 48 hours. The foregoing investigation is instructive as showing that active diphtheria bacilli can survive in other situations besides the human throat.

Typhus Fever.

There has been no serious occurrence of this disease in England during the year under notice, the total number of fatal attacks in 1913 being only 12. In several instances typhus fever was notified in error; and of the 18 cases certified as from this disease 7 have subsequently been held to have been wrongly diagnosed. Occasionally a case of true typhus is mistaken for one of enteric fever, and is notified under the latter name. For these reasons all notified cases of enteric fever where the symptoms are anomalous are deserving of the closest scrutiny. Of the 11 notified cases (probably or certainly typhus) one occurred in Bermondsey, another in Shoreditch, and two in Stepney. Four cases were notified in Liverpool, one in Wigan, and one in the urban district of Cowes. In certain parts of Eastern Europe typhus fever is endemic, and foreign returns indicate its prevalence in parts of Austria, especially in Galicia, and to some extent in Russia. It has been described as the pestilence which commonly accompanies or follows war. Accordingly, it is desirable, at the present time, that medical officers of health should be constantly on the watch for its appearance.

Enteric Fever.

No interruption is recorded in the steady fall of enteric fever fatality which England has experienced for many past years. Compared with 1901 the death-rate of 1913 has declined by 70 per cent. Throughout that year the incidence of attack was on the same low scale as that obtaining in 1912. In England and Wales the sickness-rate was 22 per 100,000 living, as against 38 and 23 respectively in the two preceding years. As usual, the rates varied enormously, ranging among administrative counties from 4 per 100,000 in Hereford and in Montgomery to 47 in Northumberland and 50 in Lancashire. An outbreak of enteric fever occurred at Kenilworth, in which circumstances pointed to the public water-supply as the probable cause of mischief.³ On investigation it became clear that an "adit," from which this supply was derived, must have received water from a brook fouled by the discharge from a storm overflow of a section of the Kenilworth sewers. Towards the end of the year 41 persons were attacked with enteric fever, 26 of whom fell ill within a week. Some days previously there occurred in Kenilworth a general prevalence of gastro-enteritis, which was probably, though not certainly, connected with the sewage pollution of drinking water. The foregoing occurrences at Kenilworth furnish yet another illustration of the necessity of keeping under constant observation the purity of public water-supplies. Long immunity from water-borne infection may induce false impressions of security unless local possibilities of contamination are sought for and remedied. Special importance now attaches to this matter, in view of the possibility of military operations, which, besides increasing the demand upon local water-supplies, might expose the sources of those supplies to danger of pollution. As in previous years,

occasional outbreaks of enteric fever have been officially attributed to the eating of shell-fish contaminated by sewage. In reporting upon a recent epidemic of this disease in Portsmouth, involving the illness of 140 persons, the medical officer of health expressed the belief that most of the enteric fever in that town is due to eating shell-fish which has been contaminated with sewage. Although attention has frequently been drawn to this danger in his reports the warnings have fallen on deaf ears. The shell-fish are regularly collected from obviously polluted places, at times within 100 yards of the sewage outfall. The health officer further points out that when once the shell-fish are gathered there is nothing to indicate whether or not they come from a polluted source so long as they appear fresh, although they may be loaded with typhoid bacilli. Dr. J. Niven's report for Manchester contains particulars of an investigation by Dr. B. M. Cunningham on the relation of mussels to enteric fever. The inquiry related to 108 cases occurring in that city. In every case uncooked mussels had been eaten within three weeks of the onset of fever. One-third of the patients were beer-drinkers to excess, among whom the eating of shell-fish is a well-known habit; this commodity being habitually purveyed outside the public houses, or even in the bars. The facts elicited supported the conclusion that the mussels were probably the cause of enteric fever.

Tuberculosis.

The more accurate knowledge of the behaviour of tuberculosis gained under recent provisions for its notification has considerably increased the efficiency of measures for its administrative control. Incidentally a large addition is thus caused to the work of the Board's medical department, corresponding to which is the fuller treatment of the subject noticeable in Dr. Newsholme's recent reports. As far as can be judged from another year's experience the notification of tuberculosis has been accompanied by less inconvenience and friction than was originally anticipated. In some instances the public health possibilities of notification have not been realised, in consequence whereof only imperfect action has resulted. Nevertheless, it is believed that with the fuller development of tuberculosis schemes the public health advantages dependent on notification will be more uniformly secured. One of the principal difficulties hitherto encountered has been that in certain instances dismissal from service has followed the knowledge that an employee was suffering from tuberculosis. In regard to domestic servants, for example, the advice is given that the first interview after notification should take place at the office of the medical officer of health, rather than at the employer's house. Again, in the case of a school teacher with open tuberculosis, the aim should be to adopt a course which, besides minimising risk of infection, may conduce to the personal interest of the sufferer. In both the foregoing circumstances this can best be effected by consultation with the patient's own doctor. In the event of the school teacher becoming unfit for the discharge of his duties, the anticipation of a pension, due at a later stage, in such cases may diminish the hardship involved.

The general decline in the mortality from tuberculosis observed in recent previous years has continued in the year under review. In the present report details are given of the local distribution of the fatal cases and their incidence on age and sex; but for these statistics reference is necessary to the original, as they do not admit of summary in a brief notice like the present.

It frequently happens that the first notified case is not the first clinical case of tuberculosis in a family; and from the standpoint of prevention the detection of such early cases is important. Examination of contacts sometimes discovers patients in an earlier stage of disease than the notified patient. The probability of effecting a cure is very much greater where the disease has been recognised before bacilli commence to be discharged in the sputum. Consequently the success of any scheme for dealing with tuberculosis must depend on accuracy of diagnosis of early cases. At the time of notification a large proportion of cases of pulmonary tuberculosis are found to be in an advanced stage. Late notification is mainly due to the patient's neglect to obtain medical advice; but in not a few cases there appears to have been medical delay in recognising the disease. In these cases examination of sputum would have ensured earlier and more satisfactory treatment.

³ THE LANCET, May 9th, 1914, p. 1346.

THE LANCET.

LONDON: SATURDAY, MARCH 6, 1915.

The National Support of Science.

It is difficult to believe that when an intelligent nation, or at any rate a highly civilised nation, is confronted with a critical economic problem it will fail to draw on its best energies in arriving at the solution. Nor is it thinkable that the position of a political party or of commercial persons can count when the fate of a great national industry is at stake. Yet it is the fact that the vast British textile trades will be seriously inconvenienced unless substantial aid from financial, scientific, and political directions soon occurs. The great Government departments have done splendidly in mobilising military forces; they must lose no time in mobilising with like success the chemical activities of the country, or there may spring into being an army of unemployed of not less than a million and a half of able-bodied operatives. That, at all events, is the position into which the British textile trades are drifting unless our national output of dye wares can be increased to meet the deficiency of supply occasioned by the cutting off of German imports. This huge industry depends for its commercial success upon the use of dye-stuffs which in value amount to £2,000,000 per annum, and only 10 per cent. of this is produced in this country. Disaster not only to this industry but to many businesses with which it is intimately bound up is imminent if the supply of dye-stuffs cannot be obtained on the same scale as obtained before the outbreak of the war. The medical significance of the situation is apparently remote, but only partially so. First, anything that has to do with the production of dye-stuffs bears in the closest way upon the manufacture of synthetic remedies; while, secondly, and more generally, all medical men are interested in any measures taken by the State for the support of scientific work. If we can annex from Germany the spirit that made the German Governments turn to the best scientific advisers in all difficulties, we can afford to neglect territorial acquisition as much as any hardened pacifist, while rejoicing in what we gain.

If this country really sympathises with the scientific spirit, to return to the position of the textile trade which we have used as an example, there would be no disagreement between the work done in the laboratory and that done in the factory. It is said very truly that research cannot be hurried, but that is all the more reason why the services of the practical scientist should be rapidly secured. In some directions, no doubt, research will

be required, but we believe that the really profitable study will be the intelligent application of established results of scientific work to the factory. The men wanted mainly will be those who can take an experiment from the test-tube to the great plant of the chemical factory and successfully produce there in tons what they can obtain in grammes in the laboratory. That achievement sums up what the Germans have done, backed, of course, by powerful Government financial support in their great chemical interests, which produce dyes, synthetics, and a host of other chemically refined products. We are well aware that the main successes of German chemical trade have taken time to achieve, but it is equally true that the principles of method which have led to these successes are perfectly well known to British chemists. What our rulers have failed to appreciate appears to be the fundamental importance of lay recognition of scientific claims, so that the expert and the merchant can coöperate. Success, commercially speaking, can only be secured by the collaboration of business acumen and scientific ability with technological knowledge. The man of business, important though his rôle is, knows as a rule little of the workings of the methods he finances; the scientific man invariably is a stranger to business methods, while his discovery may remain only a laboratory fact until the technologist is consulted. With the advent of the engineer, who can foresee difficulties on the large scale, who can overcome them by his practical knowledge of the adaptation of test-tube experiments to the demands of the vat and filter press, and who is familiar with operations conducted in commercial bulk, true collaboration is established. It is rare that such a collaboration exists in the industries of this country, and that is why in some directions we do not possess the strength and position of the German industrial leaders, who perceived long ago that a well-paid scientific and technological staff was indispensable to the success of their works.

Unless this sort of collaboration is established in this country it will be difficult to relieve the grave shortage of those supplies of dye-stuffs which are essential to the British fabric trades. Though we possess many highly trained men, chemists and technologists, their services are seldom sought by industrial concerns, or if they are the emoluments are such as to induce only the less experienced men to accept the post offered. That discreditable situation should cease. Skilled men are now occupied in advanced work in the laboratories of our universities, university colleges, technical schools, and other research departments. This country is thoroughly equipped with men of ability in chemical and technological science, and it should be the accepted thing for them to find their proper place in the sound organisation of all industries based on high scientific principles. Amongst these must, of course, be included the producers of fine chemicals and drugs. Proof again and again is afforded that the success

of such industries is dependent upon scientific assistance and collaboration, and the services rendered should receive a remuneration consistent with their value. The Government and country should recognise and act upon these considerations; in the manufacture of textile fabrics immediate action is called for, but everywhere the coöperation of organised scientific knowledge should be invited. This has been done in the fullest manner in regard to the medical needs of our army; a similar spirit should appear in our commercial circles.

Influenza or Epidemic Catarrh.

A CONDITION of catarrh of the upper air passages, associated with more or less fever, appears to be raging in London and many parts of the country with almost epidemic intensity. Similar visitations during some parts of the winter months have been the rule, at any rate in recent years. The lay public, in most cases guided thereto by the popular press, labels this condition "influenza" and regards it as a recurring variety of that disease, varying somewhat in its manifestations in successive years. The medical practitioner, pressed for a name to apply to such conditions, as a rule adopts the popular term of influenza as convenient and satisfying, while at the same time if he is a conscientious student of bacteriology he has misgivings about this use of the term, and is careful to explain that it is used in a clinical or popular sense and not as a scientific name. Probably in a damp and changeable climate like that of these islands some form of catarrh of the upper air passages has always been more or less prevalent during the winter months, but a study of the history of epidemic diseases seems to show that in certain years much more severe attacks, sometimes with a large mortality, occur at irregular intervals with epidemic intensity, usually as part of a great pandemic, and to these the name of influenza has been given. The last great pandemic of influenza in 1889 naturally gave a great impetus to the bacteriological study of the disease, and was followed by the discovery of the bacillus influenzae in 1892 by PFEIFFER. Before this discovery the term influenza had solely a clinical significance, and although the terms influenza, coryza, influenza cold, catarrhal fever and febricula were all applied to similar conditions occurring sporadically, or even with mild epidemic incidence at times when no pandemic was raging, there was no suggestion that these conditions had a common bacteriological etiology. After the discovery of Pfeiffer's bacillus it was perhaps too hastily assumed that this organism was the sole cause of these catarrhal fevers, and the protean forms of the condition which occurred in the great pandemic may have seemed to lend some colour to this view. The bacteriology of a so-called common cold is still a vexed question, and many organisms have been incriminated by different observers. There can be little doubt that

an almost identical clinical picture may be induced by different organisms. The same no doubt applies to these epidemic catarrhal attacks with which we are so familiar each winter. It may be doubted whether at the present time there is any genuine influenza present in this country, if by this term we mean the condition produced by Pfeiffer's bacillus. Bacteriological examination of a few cases occurring in any one practitioner's individual experience does not apparently give uniform results, since various organisms may be found, such as the pneumococcus, streptococcus, micrococcus catarrhalis, and even the Friedländer pneumobacillus. It would seem that the time is opportune for a systematic bacteriological examination of numbers of cases occurring in different parts of the country and in different families to determine whether the conditions influencing the epidemic incidence of these winter catarrhal fevers cannot be more clearly established. We should like to know whether there is any preponderance of a particular organism in particular epidemics or in different localities, whether the cases in individual families are infected by the same organism, and what part climatic and telluric conditions play in the development and spread of these catarrhal fevers. Before we can correctly define the condition of influenza some such data are essential, and we should not lightly gird at the practitioner who uses the term influenza in its clinical sense until these data are forthcoming. Some such researches are urgently needed in order to enable the nosologist to classify properly, whether in one group or several, these very common and troublesome conditions, and so to afford us a nomenclature free from confusion.

ARRANGEMENTS FOR MEDICAL CERTIFICATION UNDER THE INSURANCE ACT.—The Irish Insurance Commissioners have now substituted for last year's abortive scheme to establish salaried whole-time certifying medical officers the appointment of certain medical men as salaried part-time officers. This plan is worse for the patient, in that it is impossible for a part-time officer to inquire into the claims with sufficient promptitude. It is more objectionable to the profession for the patients of certain medical men are thus put in a privileged position as to their claims for benefit, while the Commissioners naturally find it difficult to obtain men for the posts. A few medical men have done so. These, however, being mostly in the Poor-law medical service serious difficulties are arising, for the duties of a certifier carry him far out of his Poor-law district, and he is unable to arrange for the care of his patients in his absence. This leads to difficulties as to consultations and extra professional assistance which are especially disturbing in the case of such workhouse medical officers as are also medical advisers, for owing to lack of professional assistance they will be unable to perform operations in workhouse hospitals, and operation cases therefore will have to be sent to Dublin or other large town. The matter has been brought before the Local Government Board by the Irish Medical Committee. Meanwhile the guardians of the Birr union have called for the resignation of such officers as have accepted posts which necessitate their leaving their own districts.

Annotations.

"Ne quid nimis."

THE FOOD-SUPPLY OF THE GERMAN PEOPLE.

IN view of the Prime Minister's spirited utterance in the House of Commons on Monday last, the special article which appeared in our columns of Feb. 20th on the Food-Supply of the German People will receive additional interest. This article, from a Special Correspondent in a Neutral Country, was an abstract of a pamphlet of nearly 200 pages, published at the end of last year under the editorship of Dr. Paul Eltzbacher, acting Rector of the Berlin High School, as an authoritative statement on the food-supply of the German people and the supposed British plan to starve them. No such plan has been formulated, and the present position was brought by the Germans upon themselves. Mr. Asquith has now explained that the German declaration (in regard to submarines) substituted indiscriminate destruction for regulated capture. "Her opponents," he added, "are therefore driven to frame retaliatory measures in order to prevent commodities of any kind from reaching or leaving Germany." The general impression conveyed by our article was that, on the whole, the internal resources of Germany would meet the food requirements of the people for some time to come, provided that a strict economy was practised and that every possible food material was requisitioned. The report represents the collected work of eminent experts, economists, and physiologists, and the inquiry took four months to complete. There is apparently no reference in definite terms in the report as to how long Germany can stave off starvation under the strict economic methods enjoined, but in dealing with the deficit, due chiefly to the cutting off of imports, it is stated that "with every day of continuance on present lines our deficit is increasing, and if no change is made for six months the deficit of available protein for the following six months will be increased to 50 per cent. This is the seriousness of the position." The war has already lasted seven months, and it is not likely that the drastic provisions recommended in the report can have found a complete practical adoption. Meantime the retaliatory measures recently voiced by Mr. Asquith on behalf of the Allies will not improve matters.

MEDICO-LEGAL POINTS IN CONNEXION WITH THE NEW BRITISH PHARMACOPOEIA.

So far as we are aware no serious results have as yet occurred owing to differences between the new British Pharmacopœia and the edition which was in force up to Dec. 31st of last year. That such results might happen in conceivable circumstances is clear. And Mr. Wippell Gadd, in the course of an interesting paper read before the Medico-Legal Society recently, discussed the position of the druggists in making up a prescription of a medical practitioner who has omitted to observe a change of formula brought about by the new issue. Mr. Gadd illustrated his point by referring to *strophanthus*. It was recommended in 1890 that tincture of *strophanthus* should be of the strength of 1 in 20, but in the Pharmacopœia of 1898 this was reduced to 1 in

40, with a recommended dose of 5 to 15 minims. The new Pharmacopœia substitutes for this a strength of 1 in 10 with a dose of 2 to 5 minims,¹ and it is not necessary to refer to recommendations made for lowering rather than raising the standard of strength in order to point out that a medical man who wrote out a prescription including tincture of *strophanthus* having the old standard in his mind might find himself in very serious circumstances if a druggist made up the prescription as on the face of it he ought to do. Dealing with the question what should be the conduct of the dispenser who recognises the error of the practitioner, Mr. Gadd submits the suggestion that the making up and selling of a prescribed medicine is not legally a sale of drugs such as the Sale of Food and Drugs Acts contemplate, but is rather a contract to make up the medicine with an implied condition that the pharmacist will translate the prescription and produce the medicine in accordance with what appears to him in the light of his technical training and experience to be the intention of the prescriber. We are in accord with Mr. Gadd to the extent that the druggist is certainly neither obliged to dispense a medicine in a form which he knows to be dangerous, nor justified in doing so. How far he ought to translate a prescription and make up a medicine in accordance with what he believes to be the prescriber's intention is a different matter. To raise the question and set right an error, particularly where a mistake has arisen from an obvious cause, is comparatively simple in these modern days, and a telephone message would settle the doubt at once in a large proportion of the cases likely to arise. Some such course as this would be in agreement with the recommendation referred to by Mr. Gadd, which is to be found in the preface to the Pharmacopœia, where it is pointed out that the medical practitioner must exercise his judgment in respect of the amount of any therapeutic agent that he may prescribe, with the addition: "Where, however, an unusually large dose appears to be rescribed, it is the duty of the pharmacist or dispenser to satisfy himself that the prescriber's intention has been correctly interpreted." Mr. Gadd's criticism of this is that it does not affect the legal question. No serious legal question, however, seems likely to arise. No Act of Parliament could ever be interpreted as imposing upon a pharmacist the obligation knowingly to hand to his customer a bottle of medicine inscribed with instructions to take it in dangerous quantities, and there is nothing in the Sale of Food and Drugs Acts or in the decisions under them to justify such a suggestion. Under Section 6 of the Act of 1875 "No person shall sell to the prejudice of the purchaser any article of food or any drug which is not of the nature, substance, and quality of the article demanded," and any prosecution under this Act would have to come within the provisions quoted. Now, a person handing over a prescription to be made up could hardly be deemed to have demanded something in which, without his knowledge, an excessive quantity of a dangerous ingredient was recommended, or to be prejudiced by getting something less likely to injure the patient; while the druggist can avoid any risk or liability which he might incur by varying the precise terms of the prescription, if he chooses to refer the matter back to the physician who prescribed. Let us hope, however, that cases such as

¹ THE LANCET, Jan. 9th, 1915, p. 80.

those suggested will but rarely occur. They may do so without any negligence of the prescribing practitioner in connexion with the habit of some members of the public who again and again make use of old prescriptions long after the occasion for which they were given, and perhaps even hand them to their friends. When any such person suffers by causing a prescription given in or before 1914 to be made up under the new Pharmacopœia interesting questions, not so much of law as of who was in fact guilty of negligence, may arise. Meanwhile, as we have already pointed out, there are differences between the new Pharmacopœia and the old, among which the case of tincture of *strophanthus* has been selected as a striking example, and most medical men and druggists will by now have carefully noted them. They include the altered strength of tincture of *nux vomica* and of tincture of opium, of which the former has passed from Part I. to Part II. of the schedule relating to poisons, whereas the latter, under the officially recognised title of *laudanum*, finds itself in Part I. owing to an increase of the percentage of morphine which it must contain.²

COUNTY COUNCILS AND PUBLIC HEALTH MATTERS.

A PAPER on this subject, read by Dr. J. C. Thresh at a meeting of the County Councils Association on Feb. 23rd, deserves close attention from local authorities concerned with public health administration. Taken as a whole, this administration in England and Wales at the present time is full of anomalies, unwieldy, and often needlessly complicated. The duties and mutual relation of officers in the public health service need much revision and consolidation before public medical work can be brought into any sort of system which is theoretically defensible; while a reconstitution of the local bodies themselves and of the areas over which they have jurisdiction must also be in the forefront of any comprehensive reform. Dr. Thresh realises, however, that sweeping proposals for new local government legislation, for the establishment of a Ministry of Health, or for the consolidation of public medical services are unlikely to make progress whilst the country is at war or remains dominated by the consequences of war. Meanwhile he relies upon the British capacity for adjustment and compromise, and invites county councils to consider whether they themselves are making the best use of their present powers and opportunities. In all counties, it is urged, the several medical services should be so organised, under the headship of the county medical officer, that the various departments for school medical work, maternity and infant welfare, tuberculosis, general medical inspection, and possibly also for laboratory work, are in each case efficiently staffed and equipped. There is probably room for better organisation of this kind even in the large English counties, while some of the smaller need to join with their neighbouring county councils or boroughs if the various duties now put on the county authorities are to be properly carried out. Such a process of organisation might well precede application to Parliament for new powers, particularly for powers to enable the county councils to coerce the local authorities of their constituent districts. The sanitary district of the

Public Health Acts remains the administrative unit for much essential public health work, some of it particularly difficult and thankless. Medical officers of health of these districts have the primary responsibility for dealing with outbreaks of infectious disease, the survey of sanitary conditions, the closure of unhealthy dwellings, and many other details of daily work for the health and amenities of their areas. These responsibilities have increased and become more complicated, and the district medical officer of health often needs to be able to turn to other persons in authority for advice and assistance. Dr. Thresh considers that the county staff can give greater aid to progress in this way by acting as advisers than by attempting to dominate as supervisors; leading rather than driving has given the community the most benefit in the past and offers most hope for the future. The question of remodelling public health administration bristles with difficulties, but there will be general agreement that the prospect of effective reforms at a later date should not prejudice local authorities in any efforts to make the best use of the powers and opportunities which they already possess.

EXTRACTION OF A BULLET FROM THE BLADDER BY THE URETHRA.

THE arrest of a bullet in the bladder must be rare, for the projectile must have sufficient force to penetrate the pelvis and not more than sufficient to carry it into the bladder. This is an exceptional combination of conditions, for projectiles which enter the bladder usually pass through it. At a meeting of the Académie de Médecine of Paris on Jan. 26th M. George Luys reported a case in which he removed by the urethra a bullet which had lodged in the bladder. The patient was a soldier, aged 33 years, who, while firing in the lying-down position, was shot in the centre of the right buttock on Nov. 17th, 1914. Supported by two comrades he was able to walk to the ambulance station, a distance of 4 kilometres. As there was complete retention of urine he was catheterised and bloody urine was withdrawn. For five days he passed spontaneously urine of this character, and for two days bloody stools. He then showed symptoms of a foreign body in the bladder. When he attempted to micturate, especially at the time of defæcation, the stream of urine was suddenly arrested, and it was necessary to pass a catheter in order to push back into the bladder a body in the posterior urethra. He was examined by M. Luys on Dec. 17th, when he presented the following symptoms pointing to foreign body in the bladder. 1. Complete inability to micturate in the standing position, micturition being possible only when lying down. 2. Sudden arrest of the stream with pain at the end of the penis. 3. Sometimes after the effort of defæcation the foreign body entered the urethra, but was easily made to return to the bladder by raising the pelvis. There were no symptoms of cystitis; the urine was merely a little cloudy on emission. The wound in the buttock had healed, leaving a scar 0.5 centimetre in diameter. A radiogram showed a bullet in the middle line behind the symphysis with the point directed downwards. With the cystoscope the bullet was seen in a depression on the right side of the bladder. The point was directed to the left and downwards behind the plane of the ureters. The bullet was brilliant and did not appear to be encrusted with salts. Its

² THE LANCET, Jan. 9th (p. 83) and 30th (p. 192), 1915.

removal was urgently necessary. The only method previously used to accomplish this end was suprapubic cystotomy, but the invention of M. Luys's cystoscope with direct vision opened the prospect of removal *per vias naturales*. The cystoscope was passed and the bullet was seized with forceps passed down the tube and removed with the latter. It proved to be a deformed German bullet. There was a slight calcareous deposit in its grooves.

DRUG FUND SHORTAGE IN LONDON.

THE London Insurance Committee on Feb. 25th considered the position of the drug fund, which amounted, it was reported, to about £140,000, while the total demand would be approximately £193,000. In the discussion it was suggested that the deficiency of £53,000 was due to excessive prescribing by practitioners, but Dr. B. A. Richmond, the secretary of the Panel Committee, pointed out that at the present rate at which excess was being found by the Panel Committee in its investigations into prescribing no sum even remotely approaching £53,000 would be refunded to the drug fund, even when all the allegations of excess had been examined. Dr. Richmond urged that a mistake had been made by the Government in basing the drug fund on the Plender Report—itsself founded upon conditions of contract practice which bore no resemblance to those obtaining under the National Insurance Act. Under the present scheme large numbers of women received benefit, and persons suffering from or predisposed to tuberculosis, who under contract practice were excluded, caused under the Insurance Act a heavy drain upon the drug fund in respect of specially expensive articles. The committee decided to call the attention of the Insurance Commissioners to the shortage which had arisen in spite of the action taken in regard to allegations of excessive prescribing, and to ask that steps should be taken to ensure that the chemists receive adequate remuneration for the drugs and appliances supplied by them during 1914.

THE OPEN-AIR TREATMENT OF ACUTE PNEUMONIA.

A STRONG plea for the open-air treatment of acute pneumonia has been made by Dr. George E. Rennie in the *Medical Journal of Australia*. He points out that not only is the imperfect aeration of the blood an indication for the supply of as much fresh pure air as possible, but that also the bacterial content of the air of the best ventilated room or ward is always much higher than that of the outside fresh air. The air of hospital wards is likely to be laden with numerous pathogenic microbes. In such an atmosphere the patient may acquire a secondary infection. At any rate, the conditions are favourable to the growth of the pneumococcus. Further, the air of the ward is laden with organic impurities which must impair the oxygenating power of the respired air. Hence open-air treatment is the most rational procedure. It used to be the custom at the Royal Prince Edward Hospital, Sydney, to surround the patient suffering from pneumonia with curtains to keep off draughts, and, incidentally, to prevent the access of much fresh air. When he became cyanosed oxygen was administered, and when the heart began to fail alcohol, strychnine, and digitalis were used. For the last seven years Dr. Rennie's practice at this hospital has been to treat all cases of acute pneumonia in the open both by day and night. More recently

this has become the universal practice in the hospital, although at first there was prejudice against it. This is important, as it shows that the other physicians have been convinced of the value of the treatment. However, comparison of the mortality statistics before and after the introduction of the treatment does not show any advantage. On the contrary, the mortality for the six years before the introduction was slightly lower than the mortality after it—14·4 against 15·3 per cent. But Dr. L. Teece, the house physician who analysed the records, says: "It was but rarely that pneumonia of itself killed a healthy adult, in whatever manner he was treated, as in practically every fatal case some other factor turned the scale against the patient." A perusal of the histories convinced him that the cases treated by the open-air method more quickly reached a state of comparative comfort, were less subject to post-critical rises of temperature, and showed more rapid resolution than those treated by the old method. Dr. Teece examined minutely the histories of 60 cases before the introduction of the open-air treatment and compared them with 60 cases treated after its introduction. In the former the average duration of the pyrexial period was 11·4 days, the maximum 52 days, and the minimum 3 days. In the latter the corresponding figures were 9·9 days, 34 days, and 4 days. Dr. Rennie adds that "these cold statistics," although they bear out the view that the open-air treatment is an improvement, do not bring out the facts which have been learned by experience, that the patients show much less cyanosis and distress in breathing, that oxygen is rarely necessary, and that unless there is some cardiac complication heart tonics are not required. The patients sleep better and sedatives are rarely necessary. The tongue is cleaner, the appetite is better, and convalescence is rapid. Patients who on admission were extremely ill, some with puerperal complications, recovered rapidly—cases which when treated on the old lines would have been considered inevitably fatal.

PUBLIC HEALTH IN BRITISH COLUMBIA.

THIS province of the Canadian Dominion is an example of the wonderful development that is taking place in the Greater Britain beyond the seas, a development that depends primarily on increase in population. At the last census in 1911 British Columbia had more than doubled the population of 1901; its largest city, Vancouver, had almost quadrupled its numbers in the same period. These rapid developments, however satisfactory from a commercial and industrial point of view, are associated with public health problems that are far more important in their consequences and more difficult to deal with successfully than is commonly appreciated by the authorities who have the control of finance and administration. The report of the Department of Public Health for the province is a document of three pages in length, which seems exiguous for a population of some 400,000 that has grown with the remarkable rapidity just mentioned. No detailed statistics are furnished and very few diseases are referred to. Tuberculosis is the most fatal disease, having caused 422 deaths, of which 295 were due to pulmonary consumption. The Department of Agriculture is endeavouring to stamp out the disease in dairy herds. Notification of tuberculous cases is compulsory, but apparently is not universally carried out. Propagation is

considered to be largely due to the western habit of promiscuous expectoration, which persists in spite of an Order in Council issued in 1901. There were about 700 cases of typhoid fever and 85 deaths, mostly occurring in two districts where considerable railroad construction is being carried on. It is, however, very satisfactory to find that contractors for public works have perceived the economic value of sanitary measures; the camps of the experienced contractor are clean and sanitary, with proper arrangements for storing food, protection from flies, &c., adequate latrines, and good water-supply, whereas those of the inexperienced contractor are the reverse. The former has learned the lesson of cleanliness and its value; the latter should be made to feel his responsibility for cases of sickness resulting in his camp. Infectious diseases have not prevailed to any great extent. Water-supply is a matter of some difficulty, not as regards quantity, but purity. Many towns have outgrown their sewage disposal works, and many waterways from which drinking supplies are derived have become polluted. There are thus many public health problems that are not at all easy of solution, even in a country and climate as favoured, and a population as little crowded, as British Columbia. At a meeting of the health officers of the province in the summer the prevalence of tuberculosis was deplored and sanatorium treatment advocated. Dr. Arthur considered that the time had now arrived when the province should be divided up into districts, each provided with a Government health officer, devoting his whole time to the work. Excellent papers were contributed by Dr. Underhill on sanitary legislation in reference to new buildings, by Mr. W. T. Donald on matters of dairy sanitation, and by Mr. A. G. Dalzell on sewage disposal. School medical inspection was dealt with in an interesting address by Dr. T. V. Hunter. This comparative innovation is passing through the same stages in the extreme west of the Western Hemisphere as it has done in England. At first it was looked on with disfavour, and had only friends among medical men and workers among the poor; then the teachers, and later the parents and the general public, were won over. The value of the school nurse has come to be thoroughly recognised. The meeting of the medical health officers at Vancouver in June, 1914—the first of the kind—was a great success and will, no doubt, be repeated.

A POSSIBLE DANGER IN CONNEXION WITH THE METRIC SYSTEM.

THE introduction of the metric system into the British Pharmacopœia is satisfactory as tending towards internationalism of medical science. It is, however, essential that all dispensing chemists should familiarise themselves with its practical employment and provide themselves with the necessary weights and measures, or many serious errors may occur. That this is no imaginary danger is exemplified in an article by Mr. Martin I. Wilbert, of the Division of Pharmacology, Hygienic Laboratory, United States Public Health Service.¹ Touching on the subject of adulteration and variations in strength of drugs widely used in household remedies, Mr. Wilbert first quotes the Dean of the Massachusetts College of Pharmacy as stating that a "very large proportion of technical

adulteration is due to carelessness or ignorance on the part of the retail pharmacists," and explains the nature of this "carelessness or ignorance" by a statement of the Food and Drug Commissioner for South Dakota, who says that "many of the variations of preparations from the official standards are due to the fact that pharmacists make errors in transposing from the metric system to apothecaries' and avoirdupois weights and measures and the use of incorrect weights and measures or using volume and weight indiscriminately." Such errors in transposing are very easily made, and stringent measures should be taken, it seems to us, to prohibit the introduction of any such source of error in dispensing a prescription as the transposing of it from one set of formulæ to another. Until such time as the metric measures shall have entirely displaced the older forms, as they will undoubtedly do on the score of their all-round superiority in course of time, it should be made incumbent on every pharmacist to dispense any prescription without transposition in the form in which it is written. Most of the best class of dispensing chemists have long been equally familiar with both, and prepared to use either as required. It is not with them that the danger lies, but with those who have hitherto had no occasion to use the metric system. It seems desirable that the pharmacist should have in front of him a complete table of equivalents which now generally appears in pharmaceutical books. The matter certainly demands careful consideration.

AMONG the candidates who have been recommended by the Council of the Royal Society for election as Fellows of the society are four members of the medical profession, Professor F. W. Andrewes, pathologist to St. Bartholomew's Hospital; Dr. Walter Morley Fletcher, secretary of the Medical Research Committee under the National Insurance Act; Dr. James Mackenzie, physician to the Cardiac Department of the London Hospital; and Dr. C. S. Myers, director of the psychological laboratory in the University of Cambridge.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

—At the annual meeting of governors Sir George Hare Philipson was unanimously re-elected vice-chairman of the Court. Professor R. Howden, who has just been elected President of the Anatomical Society of Great Britain and Ireland, presented the annual report of the Council to the Court of Governors, which showed the work of the College during the Epiphany and Easter terms of 1914 to have been quite satisfactory, but in consequence of the war no less than 58 full-time and 2 part-time students have now joined the forces. But notwithstanding the war, the entry of first-year students during 1914 numbered 42, as compared with 34 in the previous year. Most of the clinical teachers of the College are attached to the 1st Northern General Hospital, and three or four are serving with the colours. Just before the close of the financial year the legacy of £10,000 was received from the executors of the late Miss Emily Matilda Easton, and the principal mortgage on the building—viz., one for £8900—was paid off, and since the close of 1914 the remaining mortgages, amounting to £1225, have been discharged. The treasurer of the College, Mr. Cecil Cochrane, in presenting a statement of the financial situation, said that up to the time of the outbreak of war there was every reason to expect a successful year, while the governors were now in the happy position of having the College and land free from all encumbrance, but unfortunately the College had suffered severely in consequence of the war. At the annual meeting of the Council Sir George Hare Philipson was, as we announced in a recent issue, presented with an illuminated address in Latin, congratulating him on the completion of his 50 years' service as professor and lecturer in the College.

¹ United States Public Health Reports, Jan. 29th, 1915, p. 311.

ASYLUM REPORTS.

Dorset County Asylum for the Treatment of Mental Diseases (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 1108, the average daily number resident being 944. There were admitted 167 cases, of which 35 were not first admissions. Dr. P. W. Macdonald, the medical superintendent, remarks on the fact that for several years past there has been a very high percentage of the excited type compared with the depressed class. In 1913 there were admitted twice as many cases of the excited as of the depressed type. Any explanation of this variation in the class of cases admitted is surrounded with difficulties, and while the age problem and the home environment may play prominent parts, these do not satisfactorily explain the recurring differences in the type of admissions. Less than one-half of the total number were between the ages of 20 and 40, which does not support the view that there are more cases of excitement than depression during this particular period. Two-thirds of the admissions were over 50 years of age, and yet the high proportion of maniacal cases was maintained. The number discharged was 96, with a recovery rate on the direct admissions of 48.9 per cent., which is much above the average. Good results continue to follow the practice of treating all acute cases in the solarium. The deaths amounted to 69, making a percentage of 7.31 on the average daily number resident. Dr. Macdonald notes that the causes of death were all natural, and the only fact of passing interest was the unusual number due to malignant disease.

Wilts County Asylum (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 1192, the average number resident being 1014.3. There were admitted 188 cases, of whom 25 were readmissions. The number received was high, having been exceeded on only two previous occasions, and was 19 above the average for the past ten years. The following were the leading assigned causes of attack: Heredity, 33 per cent.; senility, 11.4 per cent.; mental stress, 18.9 per cent.; alcoholism, 7.4 per cent.; and epilepsy, 6.3 per cent. In no less than 73 of those admitted some cardiac defect existed. The discharges numbered 92, of whom 66 were recovered, making a recovery rate of 35.1. With the exception of four patients all those discharged recovered had a probationary period on trial, and to 17 of those a money allowance was granted. Such grants are a well-recognised aid to completion of recovery, and are much appreciated and undoubtedly of the utmost benefit to the recipients. The deaths amounted to 36, giving a death-rate of 8.1. The cause of death was verified by necropsy in 77.1 per cent. of the cases. Phthisis was responsible for death in 25.3 per cent. of the cases. Dr. Sydney Cole, the medical superintendent, notes that at one time the number of male patients resident was 30 in excess of the authorised accommodation, and at one time the number of female patients was two in excess. In the last report attention was called to the manner in which overcrowding conduces to the prevalence of phthisis. Dr. Cole reports with regret that phthisis has since become even more prevalent, showing with increasing force how urgent is the need for the additional accommodation about to be provided.

Glasgow District Mental Hospital, Gartloch (Annual Report for the Year 1913-14).—The total number of cases under treatment during the year was 1016, the average daily number resident being 774.2. There were admitted 263 cases, of whom no less than 67.67 per cent. were hopelessly incurable. The abuse of alcohol heads the list of causes of insanity in the admissions. In 49 cases alcohol is put down as the determining cause, and in combination with syphilis or lactation in other 10 cases, making a percentage of 22.4 on the admissions. Syphilis alone or in combination with alcohol is responsible for at least 23 cases. Of the admissions 198 unselected cases were tested for syphilis by the Wassermann reaction of the blood. Thirty-eight were positive and 130 negative. Two cases of general paralysis gave negative results, but these were not tested as regards their cerebro-spinal fluid. Dr. W. A. Parker, the medical superintendent, comments on the influence of alcohol as an indirect cause of insanity. Of the admissions, the cases in which a history of the abuse or

non-abuse of alcohol by their parents was obtained gave a percentage of parental abuse of alcohol of 51.6, while if those only were considered whose first breakdown took place before the completion of their twenty-sixth year the percentage amounted to 80.6. The number of discharges was 166, with a recovery rate, calculated on the admissions, of 35.3 per cent. There were 76 deaths, making a percentage of 9.8 on the average daily number resident. Tuberculosis was responsible for death in 3.9 per cent. of the cases, which is the lowest percentage ever recorded at this asylum. Active tuberculous disease was present, and contributory to some extent in causing death in 11 other cases besides the three ascribed to tubercle.

James Murray's Royal Asylum, Perth (Annual Report for the Year ending March 31st, 1914).—The total number of cases under treatment during the year was 150, the average daily number on the register being 118.34. The number of admissions was 30, of whom 23 were admitted for the first time. 20 per cent. of the new patients were suffering from a psychosis brought on by alcoholic intemperance, and in only 25 per cent. of these was a history of morbid heredity obtained. In 15 of the 30 patients admitted a hereditary predisposition to insanity or to one of the allied nervous conditions was present. Fifteen were suffering from an incurable form of mental disorder, while in a similar number the probability of recovery was good. The recovery rate for the year was as low as 20.0 per cent. The deaths amounted to 9, making a rate on the daily number resident of 7.6 per cent. The average age at death was 61.1 years, and the average duration of residence was 4 years 6 months. A large percentage of the men patients were engaged daily in working in the gardens. The usual experience is that they become interested in this occupation, and, as can be readily understood, it proves of benefit to the bodily and mental state of the patients.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

In accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon Henry Baker Hall has been placed on the Retired List (dated Feb. 19th).

The undermentioned have been granted temporary Commissions as Surgeons in His Majesty's Fleet: Oscar Parkes, Alfred Gregson Williams, James Francis Quigley, and James Douglas Judson.

The following appointments have been notified:—Staff-Surgeons: R. R. Horley to the *Royal Arthur* and R. H. St. B. E. Hughes to the *Sextinel*. Temporary Surgeons: F. C. Blakiston to the *Vivid*, additional, for Devonport Yard; A. E. Iles to Hospital ship *Plassy*; and J. Souter to the *Wildfire*, additional.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff-Surgeon: W. Allan to the *Vivid*, additional, for R.N. Barracks. Surgeon Probationers: P. G. Horsburgh to the *Morris* and H. E. Andrews to the *Mentor*.

ARMY MEDICAL SERVICE.

The undermentioned Colonels to be Surgeon-Generals:—Dated March 1st: Menus W. O'Keefe, C.B., Richard H. S. Sawyer, C.M.G., John C. Culling, William G. Birrell, Francis J. Jencken, and Francis H. Treherne, C.M.G.

The undermentioned Lieutenant-Colonels, from Royal Army Medical Corps, to be Colonels:—Dated March 1st: Robert L. R. Macleod, Gifton G. Adams, James M. F. Shine, Nicholas C. Ferguson, C.M.G., Gerald Cree, Samuel C. Philson, Sydney G. Allen, Philip C. H. Gordon, Llewellyn T. M. Nash, C.M.G., James H. Daly, Henry D. Rowan, Howard Carr, Thomas Daly, Michael J. Sexton, Herbert E. Cree, William H. Starr, Alexander A. Sutton, D.S.O., Michael T. Yarr, Charles H. Melville, James B. Wilson, Frederick W. G. Gordon-Hall, Henry M. Adamson, Tudor G. Lavie, Charles H. Burtchell, C.M.G., John J. Gerrard, John S. Davidson, James Fallon, Charles J. Macdonald, Robert W. Wright, Edwin Eckersley, Denis M. O'Callaghan, George H. Barefoot, C.M.G., Foster R. Newland, Reginald J. Windle, John J. Russell, Thomas du B. Whaite, Henry T. Knaggs, Richard H. Penton, D.S.O., Frederick J. Morgan, Brevet Colonel William H. Horrocks, K.H.S., Charles H. Dale, D.S.O., Hugh C. Thurston, C.M.G., Bertal H. Scott, Oliver R. A. Julian, C.M.G., Eustace A. Burnside, Stuart Macdonald, Brevet Colonel Maurice P. C. Holt, D.S.O., William L. Gray, Edward G. Browne, James C. Morgan, Herbert I. Pocock, Charles R. Elliott, Charles A. Young, John W. Bullen, Benjamin J. Inniss, Stephen F. Clark, Edward M. Hassard,

Sir William B. Leishman, C.B., K.H.P., James Thomson, Gerald T. Rawnsley, Alfred P. Blenkinsop, John Girvin, Brevet Colonel Anthony John Luther, William Hallaran, Samuel G. Moores, Thomas B. Beach, Coryndon W. R. Healey, John H. E. Austin, William T. Mould, Alfred W. Bewley, and Robert J. Copeland.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel John Donaldson to be placed on retired pay (dated Dec. 31st, 1914).

The undermentioned Majors to be Lieutenant-Colonels: Edward W. Slayter (dated Dec. 31st, 1914). Hugh S. Thurston (dated Feb. 8th), and Lancelot P. More (dated Feb. 22nd). Dated March 1st: Theophilus P. Jones, Albert G. Thompson, George A. Moore, Richard C. Lewis, Henry W. H. O'Reilly, Edgar H. Condon, Harold W. K. Read, Frederick M. Mangin, Charles E. Pollock, William J. Taylor, Bel W. Longhurst, Ferberd R. Buswell, Frank A. Symons, D.S.O., Charles T. Samman, Thomas H. J. C. Goodwin, D.S.O., Alfred E. C. Keble, Denis J. Collins, John B. Anderson, James R. McMunn, Harold V. Pryme, Alfred E. Master, George Dansey-Browning, Ernest S. Clark, Kennet B. Barnett, Arthur C. Fox, D.S.O., Sebert F. St. D. Green, Michael Boyle, Percy Evans, Claude K. Morgan, George St. C. Thom, John P. Silver, Brevet Lieutenant-Colonel William S. Harrison, Harry A. L. Howell, Douglas Lawson, Charles W. Profeit, Frederick Kiddle, Henry E. Staddon, Samuel J. C. P. Perry, Lionel F. Smith, Robert J. Blackham, C.I.E. (and to remain seconded), Henry W. Grattan, John Grech, St. John B. Killery, Septimus H. Fairrie, George T. K. Maurice, C.M.G., Francis E. Gunter, John H. Campbell, D.S.O., John V. Forrest, John C. B. Statham, Edwin C. Hayes, Edwin T. F. Birrell, C.M.G., Brevet Lieutenant-Colonel Ernest W. Bliss, Percy J. Probyn, D.S.O., Brevet Lieutenant-Colonel Arthur W. Hooper, D.S.O., Anthony H. Waring, Edward W. W. Cochrane, Arthur H. Morris, Samuel A. Archer, Robert W. Clements, Alexander J. MacDougall, Maurice Swabey, George B. Riddick, Henry Hewetson, George E. F. Stammers, Charles F. Wanhill, Wilfrid E. Hudleston, Martin P. Corkery, Leonard Addams-Williams, Malcolm MacG. Rattray, Thomas H. M. Clarke, C.M.G., D.S.O., Edwin W. P. V. Marriott, Stevenson L. Cummins, Peter Mackessack, Henry L. W. Norrington, D.S.O., John McD. McCarthy, John Poe, Hamilton G. F. Stallard, Ernest Brodribb, Arthur W. N. Bowen, William H. S. Nickerson, V.C., Hubert O. B. Browne Mason, Frederick S. Penny, Brian Watts, Henry G. Martin, Frederick F. Carroll (and to remain seconded), John D. G. Macpherson, William P. Gwynn, Standish de C. O'Grady, Augustus H. O. Young, Ernest A. Bourke, Montagu M. Lowsley, Norman H. Ross, Edgar T. Inkson, V.C., Percy H. Collingwood, Charles J. O'Gorman, D.S.O., Robert S. H. Fuhr, D.S.O., Harold P. W. Barrow, David Harvey, George J. S. Archer, Sydney O. Hall, Alfred E. Weld, James S. Gallie, Francis J. C. Heffernan, Henry Herrick, James Cowan, Austin R. O'Flaherty, Henry B. G. Walton, George B. Crisp, Cecil W. Mainprise, Alec L. Scott, Gerald H. Goddard, John E. Hodgson, Brevet Lieutenant-Colonel Matthew H. G. Fell, William B. Winkfield, Jonas W. Leake, John W. H. Houghton, George M. Goldsmith, Richard H. Lloyd, Brevet Lieutenant-Colonel John M. Sloan, D.S.O., Harry D. Packer, Lawrence Humphry, Frank Ashe, James G. Gill, Thomas C. Lauder, Duncan B. Curme, Herbert S. Taylor, Francis J. Brakenridge, Edmund P. Hewitt, Nathaniel J. C. Rutherford, D.S.O., Gilbert J. A. Ormsby, D.S.O., Horace K. Palmer, Francis J. Palmer, Vincent J. Crawford, D.S.O., Arthur L. A. Webb, Brevet Lieutenant-Colonel Howard Ensor, D.S.O., Robert A. Cunningham, George G. Delap, D.S.O., Harold Simson, William R. Blackwell, Arthur Chopping, Sydney G. Butler, D.S.O., John J. W. Prescott, D.S.O., Arthur O. B. Wroughton, Percy H. Falkner, Henry E. M. Douglas, V.C., D.S.O., Ernest E. Ellery, James W. Langstaff, Leonard Wood, Harold B. Fawcus, Evelyn P. Sewell, Lawrence W. Harrison, D.S.O., Hugh M. Morton, Marcus H. Babington, Horace S. Roch, Frederic Harvey, Henry C. R. Hime, Charles C. Cumming, Charles R. Evans, D.S.O., Harold H. Norman, William A. Woodside, Littleton F. F. Winslow, Otto W. A. Elsner, Arthur A. Seeds, Henry S. Anderson, Langford N. Lloyd, D.S.O., Thomas C. Mackenzie, D.S.O., Edward P. Connolly, and James H. R. Bond.

Temporary Captain Robert Stewart Rodger to be temporary Major (dated Feb. 27th).

The undermentioned temporary Lieutenants to be temporary Captains:—Dated Feb. 27th: Bertie Burnett Ham and Franke Chamberlain Hart-Smith.

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following Officers: To be Brevet Lieutenant-Colonel: Major Frank Wall (dated May 31st, 1914). Lieutenants to be Captains: Dated July 29th, 1914: Denis Fitzgerald Murphy and Leon Francis Brandebourg.

The promotion of Major Andrew Murphy to his present rank is antedated from June 27th, 1913, to Dec. 27th, 1912.

The King has approved the grant of temporary rank to the undermentioned:—To be Major: Colonel George Francis Rowcroft, D.S.O., Indian Army, retired (dated Jan. 8th). To be Lieutenants: Vinayak Mahadeo Phatak (dated Oct. 8th, 1914), Hira Singh Anand (dated Nov. 26th, 1914), and Henry Charles Semon (dated Jan. 7th).

The King has approved the retirement of the undermentioned officers: Lieutenant-Colonel Arthur Charles Younan (dated Jan. 1st) and Lieutenant-Colonel Vivian Godfrey Drake-Brockman (dated Feb. 13th).

TERRITORIAL FORCE.

Royal Army Medical Corps.

The undermentioned Captains to be Majors (temporary): Percy W. Thompson and John R. Holmes.

London Mounted Brigade Field Ambulance: Ernest George Thornton Poynder to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance: Henry John Blackler to be Lieutenant.

3rd Home Counties Field Ambulance: Major Stanley A. Coad to be Lieutenant-Colonel (temporary). Captain James Barkley to be Major (temporary).

1st West Riding Field Ambulance: Lieutenant Henry Norman Goode to be Captain (temporary).

3rd London General Hospital: Captain Dennis Embleton is seconded. Philip Withers Green to be Lieutenant.

3rd Southern General Hospital: James Andrew Gunn to be Lieutenant.

South Wales Mounted Brigade Field Ambulance: Major Herbert Jones to be Lieutenant-Colonel (temporary).

3rd East Anglian Field Ambulance: Major George Alexander Troup to be Lieutenant-Colonel (temporary).

3rd East Lancashire Field Ambulance: Henry Wilson to be Lieutenant.

1st Welsh Field Ambulance: To be Lieutenants: Henry Mills, Alexander Edward Mackenzie, and Lieutenant Arvor Jones, from Attached to Units other than Medical Units.

3rd Welsh Field Ambulance: The undermentioned Captains, from Attached to Units other than Medical Units, to be Captains: Frederick A. W. Drinkwater and Percy C. P. Ingram. Lieutenant Peyton T. Warren, from Attached to Units other than Medical Units, to be Lieutenant.

1st Scottish General Hospital: George Stuart to be Captain, whose services will be available on mobilisation.

Lowland Casualty Clearing Station: Lieutenant-Colonel Peter F. Shaw resigns his commission on account of ill-health, and is granted permission to retain his rank and wear the prescribed uniform.

2nd Home Counties Field Ambulance: Captain Antony Alexander Martin, from 1st Home Counties Field Ambulance, to be Captain.

4th London Field Ambulance: Major Arthur E. Jerman to be Lieutenant-Colonel (temporary).

Sanitary Service: Captain Leonard R. Toswill, from 3rd East Anglian Field Ambulance, to be Sanitary Officer, East Anglian Reserve Division.

Attached to Units other than Medical Units.—Major John Griffiths, from South Wales Mounted Brigade Field Ambulance, to be Major. Lieutenant Robert Donald to be Captain. To be Lieutenants: Michael Brannan (late Cadet, Durham University Contingent, Senior Division, Officers Training Corps), Cecil Randle Harper, and Joseph Loughheed Baskin.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Captain James R. Chalmers, from the 4th Scottish General Hospital, to be Captain.

Lieutenant Joseph H. Churchill, from Attached to Units other than Medical Units, to be Lieutenant.

DEATHS IN THE SERVICES.

Deputy Surgeon-General Arthur Rudge, late A.M.D., recently, at Plymouth, aged 89 years. He received his first commission in 1850 and retired on half-pay in June, 1875.

SHORT WEIGHT IN BREAD.—In view of recent increases in the price of bread the London County Council is taking steps to make it widely known in the county that purchasers may demand that bread shall be weighed in their presence; that it is not sufficient to ask for a "loaf," but that 4lb. or 2lb. loaves should be asked for. A limited investigation has shown that over 7 per cent. of loaves purchased in bakers' shops and 46 per cent. of loaves purchased at provision dealers' shops are under weight. 58 per cent. of loaves delivered at houses are under weight. The Public Control Committee of the Council is making representations to the Board of Trade as to the need for action to be taken in the public interest, having regard to the importance of bread as a principal article of food among the very poorest.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8916 births and 7089 deaths were registered during the week ended Saturday, Feb. 27th. The annual rate of mortality in these towns, which had been 20.1, 18.9, and 20.7 per 1000 in the three preceding weeks, fell in the week under notice to 20.4 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 19.4, against 20.2 per 1000 in London. The annual death-rate last week ranged from 5.5 in Smethwick, 6.3 in Ilford, 9.7 in Leyton, 10.0 in East Ham, and 10.6 in Hornsey, to 29.8 in Northampton, 31.6 in Darlington, 31.8 in Blackpool, 32.9 in Gloucester, and 42.5 in Cambridge.

The 7089 deaths from all causes were 102 fewer than the number in the previous week, and included 617 which were referred to the principal epidemic diseases, against 511 and 607 in the two preceding weeks. Of these 617 deaths, 306 resulted from measles, 111 from whooping-cough, 75 from infantile diarrhoeal diseases, 72 from diphtheria, 38 from scarlet fever, 13 from enteric fever, and 2 from small-pox. The mean annual death-rate from these diseases was equal to 1.8 per 1000, and was 0.1 per 1000 above that recorded in the previous week. The deaths attributed to measles, which had been 210, 207, and 263 in the three preceding weeks, further rose to 306 last week, and caused the highest annual death-rates of 3.2 in Acton, 3.4 in Northampton, 3.5 in Tottenham and in Stockton-on-Tees, 3.9 in Gateshead, 4.3 in Enfield, 4.4 in Wolverhampton, 7.9 in Darlington, and 8.1 in Cambridge. The deaths referred to whooping-cough, which had increased from 76 to 135 in the six preceding weeks, fell to 111 last week; the highest recorded death-rates from this cause were 1.4 in Bristol and in Warrington, 1.6 in Blackburn, 1.7 in Tynemouth, 2.1 in Bootle, 2.3 in Reading, and 2.5 in Merthyr Tydfil. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 68, 70, and 80 in the three preceding weeks, fell to 75 last week, and included 13 in London, 7 in Liverpool, 6 in Manchester, and 5 in Birmingham. The deaths attributed to diphtheria, which had been 72, 66, and 80 in the three preceding weeks, fell to 72 last week, of which 21 belonged to London, 10 to Liverpool, 4 to Manchester, and 3 each to Portsmouth and Cardiff. The deaths referred to scarlet fever, which had been 22, 27, and 32 in the three preceding weeks, further rose to 38 last week; 6 deaths were registered in London, 5 in Manchester, 3 in Leeds, and 2 each in West Ham, Portsmouth, Ipswich, Newcastle-on-Tyne, and Rhondda. The fatal cases of enteric fever, which had been 17, 16, and 17 in the three preceding weeks, fell to 13 last week, and included 3 in London and 2 in Newcastle-on-Tyne. The 2 deaths from small-pox belonged to the Metropolitan Borough of Fulham.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3165 in the 13 preceding weeks, had further decreased to 3041 on Saturday last; 302 new cases were admitted during the week, against 365, 368, and 295 in the three preceding weeks. These hospitals also contained 1571 cases of diphtheria, 239 of measles, 64 of enteric fever, 14 of whooping-cough, and 5 of small-pox. The 1835 deaths from all causes in London were 33 in excess of the number in the previous week, and corresponded to an annual death-rate of 21.2 per 1000. The deaths referred to diseases of the respiratory system, which had been 497, 455, and 459 in the three preceding weeks, further rose to 476 in the week under notice, and were 233 above the number registered in the corresponding week of last year. The deaths from influenza numbered 83, having been 44, 56, and 60 in the preceding three weeks.

Of the 7089 deaths from all causes in the 96 towns 190 resulted from different forms of violence and 472 were the subject of coroners' inquests, while 1850 occurred in public institutions. The causes of 55, or 0.8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 69 other smaller towns. Of the 55 uncertified causes, 16 were registered in Birmingham, 14 in Liverpool, 3 in Bolton, and 2 each in London, Barrow-in-Furness, and Gateshead.

HEALTH OF SCOTCH TOWNS.

IN the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1188 births and 955 deaths were registered during the week

ended Saturday, Feb. 27th. The annual rate of mortality in these towns, which had been 24.1, 23.1, and 22.8 per 1000 in the three preceding weeks, further fell to 21.2 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 22.8, against 19.4 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 9.4 in Clydebank, 9.5 in Hamilton, and 11.3 in Motherwell, to 24.0 in Leith, 24.3 in Kirkcaldy, and 30.9 in Dundee.

The 956 deaths from all causes were 68 fewer than the number in the previous week, and included 131 which were referred to the principal epidemic diseases, against 122 and 139 in the two preceding weeks. Of these 131 deaths, 89 resulted from whooping-cough, 11 each from scarlet fever and diphtheria, 10 from infantile diarrhoeal diseases, 8 from measles, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.9, against 1.8 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 86, 81, and 97 in the three preceding weeks, fell to 89 last week, and included 45 in Glasgow, 20 in Dundee, 5 each in Edinburgh and Greenock, and 4 each in Paisley and Kilmarnock. The deaths referred to scarlet fever, which had been 17, 8, and 10 in the three preceding weeks, were 11 last week, of which 5 were registered in Glasgow and 2 each in Edinburgh and Aberdeen. The fatal cases of diphtheria, which had been 13, 6, and 8 in the three preceding weeks, further rose to 11 last week, and included 4 deaths in Dundee, 3 in Glasgow, and 2 in Edinburgh. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 16, 14, and 10 in the three preceding weeks, were again 10 last week, of which 4 occurred in Glasgow, 3 in Dundee, and 2 in Paisley. The deaths referred to measles, which had been 13, 11, and 13 in the three preceding weeks, fell to 8 last week, and included 6 in Glasgow. The fatal cases of enteric fever were registered in Glasgow and Greenock.

The deaths referred to diseases of the respiratory system, which had been 302, 278, and 265 in the three preceding weeks, further declined to 235 in the week under notice, but were 119 in excess of the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 34, against 35 and 26 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

IN the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 647 births and 642 deaths were registered during the week ended Saturday, Feb. 27th. The annual rate of mortality in these towns, which had increased from 24.0 to 26.5 per 1000 in the five preceding weeks, further rose to 27.6 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 25.8, against corresponding rates of 19.4 and 22.8 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 34.4 in Dublin (against 21.2 in London and 21.3 in Glasgow), 22.8 in Belfast, 26.5 in Cork, 21.5 in Londonderry, 21.7 in Limerick, and 39.9 in Waterford, while in the 21 smaller towns the mean rate was 24.8 per 1000.

The 642 deaths from all causes were 25 in excess of the number in the preceding week, and included 38 which were referred to the principal epidemic diseases, against 44 and 35 in the two preceding weeks. Of these 38 deaths, 18 resulted from whooping-cough, 8 from measles, 6 from diphtheria, 5 from infantile diarrhoeal diseases, and 1 from enteric fever, but not one from scarlet fever or from small-pox. The mean annual death-rate from these diseases was equal to 1.6, against corresponding rates of 1.8 and 2.9 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 13, 17, and 12 in the three preceding weeks, rose to 18 last week, and comprised 11 in Dublin, 6 in Belfast, and 1 in Cork. The deaths referred to measles, which had been 6, 5, and 6 in the three preceding weeks, rose to 11 last week, of which 4 occurred in Belfast, 3 in Portadown, and 1 in Queenstown. The 6 fatal cases of diphtheria, of which 2 were registered in Kilkenny, were 3 in excess of the average in the earlier weeks of the quarter. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 10, 13, and 10 in the three preceding weeks, fell to 5 last week, and included 2 in Dublin. The fatal case of enteric fever occurred in Dublin.

The deaths referred to diseases of the respiratory system, which had been 172, 182, and 168 in the three preceding weeks, rose to 187 in the week under notice. Of the 642 deaths from all causes, 180, or 28 per cent., occurred in public institutions, and 14 resulted from different forms of violence. The causes of 32, or 5.0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.8 per cent.

INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Medical Services of Bengal.

THE interest of the medical profession, outside the ranks of the Indian Medical Service, has, as is well known, been the source of considerable anxiety to Government of recent times. This is as it should be, but that the path of the good intentioned is as precarious as ever is clearly shown in the triennial report on the working of the hospitals and dispensaries in Bengal from the pen of Colonel G. F. Harris, Inspector-General of Civil Hospitals. As he says, the period under review (the years 1911, 1912, and 1913) was noticeable for the introduction of an independent medical profession in the presidency. To this end the newly created chair of anatomy in the Medical College, Calcutta, was reserved for them, and in addition three of the house appointments at the Mayo Hospital, Calcutta, and seven similar appointments at the Medical College there were filled by men not in Government service. Well meant as it was, this experiment has not, however, been an unqualified success. The trouble has, it appears, been that the independent members of the medical profession to whom the posts were given have proved just a little too independent. As Government's comment on Colonel Harris's report has it, the experiment failed chiefly owing "to the impatience of discipline shown by the young and inexperienced men appointed." On this point Colonel Harris himself cautiously observes that it is early yet to offer any criticism; but he quotes Lieutenant-Colonel Calvert, principal of the Medical College, who states that the Government's latest endeavour to father the independent medical profession has been received with no enthusiasm and has impeded the smooth working of the College. Colonel Calvert adds that one effect of these appointments has been to increase the cost of hospital expenditure, as the independent men have not the same sense of responsibility and the same knowledge of hospital administration as officers in permanent Government employment. Consequently they are disposed to spend more on diet and dressing materials. With ardour undamped by the unsatisfactory development of this essay in benevolent intention, the Government of Bengal is now watching with great interest the progress of another measure also designed to encourage the independent practitioner. This consists in the association of selected members of the profession with the staff of Government hospitals as honorary surgeons and physicians, who are allowed facilities for consultation at Government hospitals and the use of operating theatres. The experiment at present is only in its initial stage, and so far only eight such appointments have been made.

The Cocaine Conference.

The conference now in progress at Delhi on the question of cocaine smuggling has chosen an opportune time for its deliberations, and it can be wished that the delegates were representative of all provinces of India instead of only Delhi, Punjab, and the United Provinces. For, as in vastly more important matters, the European War is at present the controlling factor in the cocaine trade. German chemists have for some years been the chief suppliers of the Indian market; at first openly, but recently clandestinely. Previous to the placing of cocaine on the prohibited list many native dealers

obtained their supplies direct from German firms, their manufactures being cheaper and more in demand than the English product. After possession and sale were made illegal, direct dealings with manufacturers did not cease entirely, but they are now attended with an amount of risk to the consignee that he is usually unwilling to undergo. He prefers to deal with an intermediary, who, while claiming a large share of the profits, will accept the main chances of detection. And so employees of shipping firms have found a new outlet for their smuggling proclivities.

Ambulance Trains in India.

The following are some details of the ambulance trains now running in India on the following routes:—(1) Poona, Secunderabad, and Southern India; (2) Lucknow and Northern India; (3) Lahore and North-West India. These three trains are completely equipped with everything necessary and requisite for the treatment of our sick and wounded soldiers. Considerable care and consideration have been exercised in the arrangements, and every effort has been made to provide the detailed wants for the comfort of the occupants. The trains were fitted up at the Lahore shops of the North-West Railway, and each comprises nine vehicles vestibuled together and forms a complete hospital on wheels. The make-up of a train is as follows:—

(1) Guard's brake with compartments for the personnel; (2) and (3) open ambulance cars with berths on one side and invalids' cots on the other, each car being provided with bathroom accommodation, &c.; (4) medical officer's headquarters with his assistants' sleeping berths, dining-room, small kitchen, stores, &c.; (5) separate kitchens for Mohammedan and Hindu stores, dispensary, operating-room, and accommodation for assistants; (6) and (7) open ambulance cars like Nos. 2 and 3; (8) a car with compartments opening off side corridor for convalescent cases; (9) brake with luggage compartment for equipment, clothes, &c., also accommodating train staff.

The trains are fitted throughout with electric light and fans, and each car has large water tanks underneath to provide a plentiful supply of water, filters for drinking-water in each carriage, also lockers and cupboards for linen, blankets, &c.

The St. John Ambulance Association in India.

The St. John Ambulance Association headquarters for the winter have been established in a commodious flat in the Khyber Pass Buildings, the Mall, Delhi. These premises have been lent to the Association free of rent by Khan Sahib Haji Baksh Ellahie, C.I.E., principal of the firm of Buksh Ellahie and Co., army contractors, Queen's-road, Delhi.

School of Tropical Medicine.

Good progress is being made with the scheme for the establishment of a school of tropical medicine in Calcutta, with which the name of Sir Leonard Rogers, I.M.S., is so honourably associated. An excellent site has been secured close to the Calcutta Medical College, and the buildings are now going up. The first subscription list shows that Rs.1½ lakhs have already been obtained and another half lakh is practically secured.

Bengali Volunteer Field Ambulance Corps.

The scheme organised by Dr. Sarbadhicari and Mr. Bhupendranath Basu for the formation of a Bengali Volunteer Field Ambulance Corps for active service now has Rs.1,50,000 collected or promised and has registered some 700 volunteers, out of which 200 are to be selected to form the first unit.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Surgery of Gunshot Lesions of Peripheral Nerves.

M. Gosset recently reported to the Société de Chirurgie the results of his own operative intervention in 60 cases of wounds of peripheral nerves by projectiles. Such intervention was determined on in every case only after consultation with competent specialists, and in each case manifest lesions were found. The nerves affected were: radial, 16 times; sciatic, 10; ulnar and median, 8; median alone, 5; external popliteal, 5; ulnar, 4; crural, 4; brachial plexus, 2; internal cutaneous of the arm, 2; internal cutaneous and ulnar, 1; internal cutaneous of the arm and median, 1; anterior tibial, 1. M. Gosset holds that whenever lesion of a peripheral nerve is diagnosed an exploratory incision is absolutely indicated, so that the lesion may be subjected to inspection. This incision can have no ill effects if thorough asepsis is maintained, rubber gloves being always used and drainage avoided. It should be done as promptly as possible when there is freedom from suppuration. Patients thus wounded should remain as short a time as possible in the ambulance, and should be as rapidly as possible sent on to special hospitals where they can be examined and operated on. Early operation is of the first importance, general anaesthesia should be used, and the nerve fully exposed by long incisions. The nerve must first be inspected where it is uninjured above and below the lesion. It must then be freed by dissection and dealt with at the site of the lesion itself. Simple asepsis should be practised and the operative field irrigated from time to time with hot normal saline solution to prevent desiccation of the nerve. Manipulation of the nerve must be practised with especial care and gentleness. The data furnished during operation by sight and touch are of great interest. Similar interest also attaches to the results furnished by electrification of the exposed nerve trunk. The later results of these interventions, however, will require some months before they can be properly estimated.

Vinegar as an Antiseptic.

M. Loir and M. Legangneux in an interesting paper lay stress on the important part played by fresh vegetables in the dissemination of typhoid fever, and have made a study of the value of vinegar as a destroyer of the typhoid bacillus. It has long been known that Eberth's bacillus is susceptible to acidity. In wine it rapidly disappears. Dr. Gaillard has shown that the addition of every kind of alcoholic drink to water results in an almost immediate diminution of the number of contained microbes. All the pathogenic varieties are destroyed by an admixture of equal parts. The typhoid bacillus is more sensitive to white than to red wine, the former being usually more acid. The authors have made numerous experiments to determine the degree of acidity required to destroy Eberth's bacillus in water. They find that 20 grammes of vinegar to a litre of water kills the typhoid bacillus in an hour and five minutes. From this a practical inference may be drawn concerning salads. After washing the salad as usual, detaching each leaf, it should be put into water acidulated with 10 grammes of vinegar to the litre and remain immersed in this liquid for about an hour and a quarter. All vegetables ordinarily eaten uncooked may be subjected without any inconvenience to the same process.

Correspondence.

"Audi alteram partem."

PROFESSOR EDWARD PARKES ON A SPIRIT RATION.

To the Editor of THE LANCET.

SIR,—In a discussion on the issue of a rum ration to our soldiers I have been expecting to see some reference made to the most important scientific experiments on this subject in the Ashanti Campaign in 1874, which were made by Edward Parkes, F.R.S., to whom the British army is enormously indebted for the improvements he effected in its hygiene. The results of these experiments were published in THE LANCET in August, 1874, and reprinted with introduction and appendices in a small pamphlet entitled "On the Issue of a Spirit Ration during the Ashanti Campaign of 1874" (London: Churchill, 1875). This report is so valuable that one would like to reprint it in its entirety. This being impossible I would like to quote some of his conclusions verbatim.

"It (alcohol) is not a perfectly reliable aid, and requires, when used at all, to be so with a full knowledge of its mode of action (p. viii.). The first effect of alcohol, when given in a moderate dose (for example, what is equal to one fluid ounce of absolute alcohol) is reviving, but this effect is transient. As shown both in the Report and in the first Appendix, the reviving effect goes off after, at the utmost, two and a half miles of additional march, and sometimes much before this; then the previous languor and sense of exhaustion not only return, but are sometimes more intense, and if alcohol is again resorted to its effects now are less satisfactory. Its reviving power is usually not so marked, and its peculiar anaesthetic and narcotising influence can only be distinctly traced. The men feel heavy, dull, disinclined to march, and are less willing and cheerful. It is clear, then, that alcohol is not a very trustworthy aid; for supposing a commanding officer, having marched twelve or fourteen miles, and desiring to cover ten more miles, finds his men weary, and, not being able to halt and feed them, orders an issue of spirits of an amount sufficient to revive but not to depress. The first effect will be good, but in less than an hour his men will be as weary as before, or probably more so. If he then reissues the spirit within so short a period of time it is certain that in the case of many men, perhaps the majority, the marching power will be lessened (p. viii.). Even the reviving power of the first issue is not always so considerable as might be supposed, and, indeed, I have been surprised to find how little good effect it has sometimes produced. It appears to me, therefore, that spirits, as an issue, should be kept for emergencies, as when after great fatigue a sudden but short exertion is required, or, when a march being ended, there is great depression and failure of the heart's action, such as occurs when men have been thoroughly wetted during an exhausting march. To give strength to the men during the march, when the usual food cannot be taken, the meat extracts and coffee are both better than spirits (p. ix.). The first Appendix shows how unanimous the soldiers who were experimented upon were in assigning a great superiority in reviving and sustaining power to the meat extract over the spirit. The meat extract can also be repeated over and over again without injury, indeed with benefit. Coffee, again, is also very reviving during fatigue, and has the great advantage of quenching thirst much better than the meat extract, but it requires to be well made and to be palatable, which is not always easy to ensure in forced marches (p. x.)."

In his report Professor Parkes distinguishes sharply between *facts* and *opinions* (p. 28). The chief facts are:—

"1. Entire abstinence from alcohol did not make the men more sickly as a whole or more disposed to malarious fever (p. 28). 2. The marching powers of teetotallers were good. The evidence is against the usefulness of rum during marching. 3. The reviving effect of the rum when given at the

end of the day was strongly spoken to (p. 31). Under exhaustion after great exertion alcohol will quicken the heart and act for a time as a restorative, though it may be hurtful or not useful during the actual period of exertion. The general feeling of warmth caused by alcohol and the temporary strengthening of the heart's action were also, no doubt, succeeded by a slight anæsthetic effect, making the sleep rather more profound. 4. The evidence of one or two of the men is that they marched better when rum had been issued on the previous evening. 5. Some of the evidence indicated the greater power of digestion given by the rum and the increased appetite given by somewhat changing the monotony of the food. Such appear to be the main facts brought out by the evidence (p. 32)."

The opinions of the different witnesses were rather various, and therefore I may perhaps state shortly my own opinion founded on the facts. The use of alcohol in the body is like the use of a bill in commerce which may enable a merchant to tide over a financial difficulty by enabling him to make calls upon his capital in order to meet his present wants. If the call is simply temporary the bill may tide him over a crisis and will thus be most useful, but if his reserves are insufficient it will only hasten bankruptcy. In like manner alcohol enables a man to call on his reserves of strength and may enable him to make a spurt which he could not do without it. But if the exertion is to be long continued it simply accelerates exhaustion. After the exertion is over and the man is too tired to eat, the alcohol will help to call up his reserve strength and enable him to eat and digest better than he could without it, so that the increased assimilation of the evening meal and better sleep following it may enable him to march better next day. During exposure to cold in a healthy man the cutaneous blood-vessels contract and the blood is thus prevented from circulating over the surface and becoming cooled by the external cold. This protective mechanism sometimes continues to act after the necessity for it has ceased, and not only keeps the surface cold after the person has entered a warm room, but prevents the blood from conveying the external warmth to the internal organs. Alcohol dilates the cutaneous vessels, and by allowing warm blood from the interior of the body to circulate over the surface it causes a pleasant feeling of warmth when the external air is cold, and may also produce coolness by evaporation of sweat from the skin during exposure to heat. If the exposure to cold is short and slight, no harm may be done, but if the exposure is long continued or the external cold is great the skin is warmed at the expense of the vital organs and death results. For this reason the men who cut down timber in the Canadian forests in winter, knowing that intoxication means death, remove temptation by prohibiting spirits entirely, or as Sir Anthony Hope (quoted by Parkes, p. 15) says, "It is an inexorable rule that all drinks found in the camp are destroyed." Meat extracts and coffee when they can be obtained are not liable to the same objections as alcohol, and Parkes has carefully drawn attention to their useful qualities.

In trying to sum up one is obliged to return to Parkes's statement (p. viii.) that alcohol "requires when used at all to be so with a full knowledge of its mode of action." Such a knowledge as this can hardly be possessed by combatant officers, but it may and should be possessed by medical officers, and therefore a spirit ration to soldiers should not be issued haphazard, but only on the order of a medical officer.

I am, Sir, yours faithfully,

New Cavendish-street, W., March 1st. LAUDER BRUNTON.

SANITATION IN INDIA.

To the Editor of THE LANCET.

SIR,—In a resolution dated May 23rd, 1912, the Government of India laid down that certain additional appointments of Deputy Sanitary Commissioners and first-class health officers were to be created. It was required: (1) that candidates should possess registrable medical qualifications and British Diplomas in Public Health; (2) that no officer is appointed who is not an accepted candidate for the Sanitary Department. Indians were held eligible. In regard to first-class health officers, it was stated "the necessity for a British diploma will, however, be only temporary, as the Government of India trust that it may be possible to remove the second restriction so soon as arrangements can be made in India, which will enable Indians to be trained in this country (India) to become health officers of the first class." No similar relaxation is provided for in respect to Deputy Sanitary Commissioners. Although much water has flowed beneath the Sara Bridge since May, 1912, the "arrangements" for supersession of British diplomas are not yet in working order. Consequently several intending Indian candidates have undergone the labour and expense of obtaining in Great Britain the necessary qualifications.

An intelligent Indian who had studied for the D.P.H. at King's College recently presented himself before a Sanitary Commissioner in India as a candidate for the Sanitary Department. In reference to his qualifications he was informed by this official that he has "no faith in the D.P.H. diploma—that it is all cramming," and that if he desired to enter the Sanitary Department he must be prepared to work his way up "from the very bottom rung of the ladder." In describing the hopelessness of his position to Professor Hewlett this candidate adds as to the prospects of his late co-students at King's College, "not one of our set has succeeded in obtaining any suitable job."

We have no wish to suggest that because a man has gone to the expense and trouble of securing special qualifications he must necessarily receive an appointment, or that, for reasons unknown to us, a particular man may not be an undesirable candidate; but it does seem to us uncalled for that the rejected and dejected individual should be informed that the British diploma he has gained at infinite pains is of no practical value. This verdict is as paradoxical as it is, in this instance, unjust; as, whilst first-class officers are invited to look forward, in the resolution of the Government of India, to being provided with local qualifications in public health when arrangements are complete, officers of superior status in the Sanitary Department (Deputy Sanitary Commissioners) are not to be so exempt, which seems an extraordinary requirement if the British diploma be of so little value.

The effect of a statement of this description upon Indian minds from an official responsible for making nominations for sanitary appointments cannot be otherwise than to cause the abandonment of seeking sanitary teaching in this country. In our opinion this cannot be to the advantage of "sanitation in India." Whilst applied hygiene in the tropics has much of the nature of a specialty, it can but treat of modifications of those principles of hygiene of universal application with which education for public health diplomas concerns itself. Thus, though doubtless India has numerous suitable officers to teach hygiene, for many years to come, in the presence of incomplete sanitary

organisation and but few sanitary works, "cramming" as to applied hygiene, of which British educational methods are held to be guilty, must become literally the method pursued in that country, for the simple reason that under existing conditions, whilst it is always possible to demonstrate to a class how matters should not be, it is rarely possible to show by practical illustration how they should be. As Indian candidates have from infancy had intimate knowledge of Indian conditions, they can when in Europe safely dispense with illustrations of the former in favour of practical illustrations of the latter. It is, therefore, in our opinion, distinctly desirable that the Indian candidate for important sanitary appointments should regard training in Great Britain as the foundation of his career. That in India thereafter he might be subjected with advantage to post-graduate lectures on certain subjects is self-evident.

So far as results are concerned, it would appear that the Government of India having issued its resolution of nearly three years back has rested content. Granted that this inaction is due to the fact that interference with local governments was not desired, these might at least have been invited to draw up rules for general information, within their own areas, as to how and when the selection of candidates would be made. In the absence of such specific statement in each province Indians have been induced to risk time and money by proceeding to this country, and are liable to be told on their return that the "scrap of paper" they bear back with them is worthless. This is the case also with candidates for second-class health officerships, whose "main qualifications" were defined, in the resolution above quoted, "as a good general education supplemented by a course of training in public health approved by the local government." In the light of this resolution several Indians came to this country for training without guidance as to subjects requisite or the class of institution they should apply to; and now we find that certain local governments desire that second-class health officers shall in the first place acquire a medical education. Obviously it has not sufficed for the Government of India to have passed a resolution three years ago; the progress of the policy then pronounced demanded subsequent careful fostering or modification.—We are, Sir, yours faithfully,

R. TANNER HEWLETT, M.D., D.P.H.,
Professor of Bacteriology in the University
of London.

W. G. KING, M.B., C.M., D.P.H.,
Lecturer on Applied Hygiene in the Tropics,
King's College, University of London.

W. J. SIMPSON, M.D., D.P.H.,
Professor of Hygiene in the University of
London.

King's College, University of London, Strand, W.C.,
Feb. 25th, 1915.

LOUIS DANIEL BEAUPERTHUY AND MOSQUITO-BORNE DISEASES.

To the Editor of THE LANCET.

SIR,—In my Huxley lecture published in THE LANCET of Nov. 7th, 1914, I gave a short review of some of the work upon which our modern theory of mosquito-borne diseases has been based. My lecture was reviewed by Dr. Andrew Balfour in the *Tropical Diseases Bulletin*, 1915, Vol. V., No. 1, p. 34. He says: "In this connexion the name of Beauperthuy might have been given honourable mention, for his work was at least as meritorious as that of King, and he wrote

long before the latter." I generally try to be very scrupulous as to the work of those who can claim to have any genuine share in scientific discovery, and I did not mention Beauperthuy in that lecture because I did not think that his contributions to the subject of insect-borne diseases were of sufficient importance. I have not read Beauperthuy's original papers because they are not, I believe, accessible in this country, but I studied numerous abstracts from them published by Sir Rubert Boyce in his "Mosquito or Man," and could scarcely share the very enthusiastic appreciation of his work given by Boyce—who was himself an enthusiast, but one who did not possess much critical tendency and who had only lately commenced the study of this subject. I gave an abstract of Beauperthuy's work in my "Prevention of Malaria" (first edition, 1910, p. 15).

The mosquito theory of malaria appears to have originated with the Romans, and was certainly in the mind of Lancisi in 1717, while the idea was so much in the public mind that there was an ordinance of Freetown, Sierra Leone, dated 1812, in which the inhabitants were enjoined to keep their plots in good condition in order to prevent the formation of "stagnant pools which generate disease and mosquitoes over the town." Beauperthuy (1853) appears merely to have repeated these old speculations and to have extended them to a kind of general hypothesis that many diseases are due to the biting of insects. But he does not seem to have thought that the insects carry the germ from man to man, but rather to have believed that they poison human beings by their secretions as snakes do, quite another hypothesis. He definitely says that mosquitoes introduce "a poison which has properties akin to that of snake venom," and thinks that "the expression Winged Snakes employed by Herodotus is peculiarly applicable to the mosquito, and the result of its bite on the human organism." Now such a hypothesis is discredited at once if we remember that persons continue to suffer from fever long after they leave the regions where they are acquired. One might as well imagine that a person continues to suffer from snake-bite years after he has been bitten. Moreover, I doubt whether Beauperthuy ever supported his speculations by careful observation and experiment, and indeed I thought, though I am not very sure of this, that he had scarcely studied sufficiently such a simple thing as a mosquito's proboscis. What may be called scientific speculators of this kind are quite numerous. They love to bring out a number of hypotheses which they state as dogmas and seldom support with sufficient proof, and I think it is a mistake to credit such with a leading share in discoveries which may subsequently be effected by careful thought and experiment working hand in hand. This is especially the case when the speculator not only gives little evidence, but uses very poor arguments, as I think Beauperthuy did. I do not at all agree with Dr. Balfour that Beauperthuy's talk was as meritorious as the able paper by Dr. A. F. A. King (1883) on the possible carriage of malaria by mosquitoes. Dr. King's article, which I possess, is a genuine scientific contribution, in which he marshals no less than nineteen reasons in favour of his hypothesis. The work of both these theorists was forgotten when the actual researches which established the relations of insects to disease were commenced and carried out.

As, however, I have not read Beauperthuy's original papers, I have asked Dr. Harald Seidelin, of this

school, who has read them, to give me his opinion, and beg to attach his reply herewith. As the *Bulletin of Tropical Diseases* is scarcely a suitable place for discussions of this nature, which are, however, of much interest, I hope that you, Sir, can find space for both these letters.

Yours faithfully,

RONALD ROSS.

Liverpool School of Tropical Medicine, Feb. 26th, 1915.

[ENCLOSURE.]

Feb. 26th, 1915.

DEAR SIR RONALD,—At your request I write you giving my opinion on the subject of Beauperthuy's announcement of the mosquito transmission of disease.

The importance of Beauperthuy's work has been considerably over-rated. This was pointed out some years ago by Guiteras (1910). Unfortunately the publications of Beauperthuy are not easily accessible, a circumstance which probably contributes to make his life and work somewhat legendary. Quotations are given by Agramonte (1908), who in exaggerated terms drew attention to the importance of Beauperthuy, and by Boyce (1909). In the latter work especially readers who have no access to Beauperthuy's own writings will find considerable information. Also Sir Rubert Boyce spoke highly of Beauperthuy as a man and of his work, but in the latter respect I am not able to follow him. Like Sir Rubert Boyce, I am indebted to Dr. de Verteuil, Port of Spain, Trinidad, for the loan of the posthumous collection of Beauperthuy's scientific papers (1891). Being particularly interested in yellow fever work, I paid special attention to the sections dealing with this subject. The whole book consists of loosely connected, or completely disconnected aphorisms. The idea of miasms is, with good arguments, shown to be erroneous and unfounded, but just as phantastic ideas about the transmission are set forward—ideas which are often changed from one page to another. Plague, cholera, and most other infectious diseases, including (according to one statement on p. 152) tuberculosis, are said to be transmitted by means of ascaridæ or "insects." The transmission is not supposed to take place from one individual to another, but the insect is believed to absorb some poisonous substance from decomposed organic material.

The section dealing with yellow fever contains (pp. 131-138) a description of the disease and its epidemiology; then follows (p. 138) a description of the mechanism of the bites of "les tipules," apparently without any connexion with the preceding paragraphs, as is so common in the book.

With regard to the transmitting insects Beauperthuy says: "Les agents de cette infection présentent un grand nombre de variétés qui ne sont pas nuisibles au même degré. La variété *zancudo bobo*, à pattes rayées de blanc, est de quelque sorte l'espèce domestique. Elle est la plus commune et sa piqure est inoffensive comparativement à celle des autres espèces." Agramonte asserts that this "zancudo bobo" is the *Stegomyia fasciata*, but Guiteras takes a different view. Personally, I think that the reader's first impression would be that Beauperthuy refers to *S. fasciata*, but Guiteras supports his emphatic denial with very good reasons. He points out that "bobo" means "silly" or "dull," adjectives which certainly no acute observer would make use of in order to characterise the very active *S. fasciata*. He also states definitely that the term "mosquito bobo" is applied (in Cuba presumably) to *Culex sollicitans*, to which mosquito he believes that Beauperthuy was referring. This is a detail, but one not without importance. Another question, of no less importance, is whether Beauperthuy really intended to say that this particular "zancudo bobo" carried the yellow fever infection, or to point out its comparative innocuousness in this respect. Again, we find that Agramonte takes the first view, which is also adopted by Boyce; Guiteras the second. On reading the book, I received exactly the same impression as Guiteras, who says that Beauperthuy "singles out this particular mosquito precisely to say that it is not the producer of yellow and malarial fevers." I must, however, admit that there is a possibility of interpreting his words otherwise. It depends largely on the translation of the word "inoffensive"; if this word is translated "harmful," Guiteras is obviously right, but if the translation "painful" is adopted, then Agramonte's opinion is not wholly untenable. This is perhaps the key to the whole discussion; some of Beauperthuy's statements are

so vague that almost any interpretation may be put forward without too great a risk of being refuted as absurd. It is certainly remarkable that Beauperthuy should harbour and express such ideas concerning insect transmission of diseases. But the value of these ideas is greatly curtailed when it is remembered that they did not include the transmission from man to man, and, more important still, that he was discussing many kinds of fever which we now know to be transmitted in other ways. His words were prophecies, and they happened to come true in some cases, but it is almost equally important that they proved failures in other cases.

The question of the importance of Beauperthuy's work is of particular interest because praise of Beauperthuy has, on some occasions, been used as a means of belittling the work of Finlay. This was the reason which prompted Guiteras to write the letter referred to above. Also to me it appears absolutely incomprehensible how anybody can give anything like equal importance to the work of Beauperthuy and to that of Finlay, as is done by Agramonte, and also in an editorial note in THE LANCET in connexion with Guiteras's letter. Finlay indicated the transmission from man to man, indicated *S. fasciata* as transmitting insect, and indicated the essentials of a rational yellow fever prophylaxis, supporting his ideas by careful observations, logical reasoning, and valuable, if not conclusive, experiments. Beauperthuy did absolutely nothing which can be compared with all this.

Yours sincerely,

HAROLD SEIDELIN.

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THE HUNTERIAN ORATION.

To the Editor of THE LANCET.

SIR,—There is rather an important slip in my Hunterian Oration, published in your issue of Feb. 27th, which I should like to correct. It occurs in the last line of the last paragraph on p. 425, which runs thus, "but still no growth has occurred." The word "no" should be omitted—there was copious growth.

I am, Sir, yours faithfully,

W. WATSON CHEYNE.

Royal Naval Hospital, Chatham, Feb. 28th, 1915.

THE PREVENTION OF INSANITY.

To the Editor of THE LANCET.

SIR,—At this time of national upheaval, when most social efforts for the benefit of civilians are receiving but scant notice from the public, there is one movement to which it behoves both the profession and others to give immediate attention. This is especially urgent because there are at the moment before Parliament Bills purporting to deal with the question. I refer to the effort to lessen the present steady increase of insanity in the country. The multiplication of large asylums for certified patients will not do this. Cannot something be done in the way of prevention? A large number of cases of insanity are the outcome of longer or shorter periods of mental strain due to anxiety, shock, overwork, insufficient means, ill-health, uncongenial surroundings, and trouble of many other kinds. If available facilities existed for relieving such patients from the pressure of their injurious environment, and for a time giving them rest and treatment under medical care, a final breakdown might in a large number of cases be avoided. For the lower middle classes and the poor, however, the possibility of obtaining such treatment does not exist outside the walls of certified asylums. Yet physicians of experience

are well aware that many cases of mental affection are absolutely recoverable without the painful experience of certification or exposure to the trials of an asylum, and that from fear of these both patients and their friends tend to postpone treatment till a worse result is inevitable.

There ought, therefore, to exist places (not run for profit) to which the ordinary practitioner could advise these patients to go, just as they would enter any other hospital or convalescent home, and where, in a normal atmosphere, they would receive the treatment, control, and encouragement their state requires. These might in some cases be wards of general hospitals, in others separate establishments, but the *sine quâ non* is that they should be entirely unconnected with all idea of lunacy and lunatic asylums. On this account it is obvious that such homes ought not to be under the management of the Board of Control, but rather that of the Local Government Board. This would be a guarantee to patients that they would in no way be confused with the mentally deficient or the certifiably insane. No small element in the preventive usefulness of the homes would consist in the sense of freedom and hope with which they could be entered, as well as the absence of all stigma on those who left them recovered.

I am, Sir, yours faithfully,

HELEN WEBB, M.B.

St. George's-square, S.W., Feb. 27th, 1915.

FOOD-SUPPLY OF THE GERMAN PEOPLE.

To the Editor of THE LANCET.

SIR,—Might I beg you to allow me a statement in regard to your interesting reproduction of Dr. Paul Eltzbacher's pamphlet on Food-supply of the German People in your issue of Feb. 20th. Under "Prohibition of Exports" (p. 392) Dr. Eltzbacher states that "it is much to be regretted that our Government in friendly consideration for Switzerland allowed 2500 wagons of grain to be exported." I have to state the fact that these 2500 wagons of grain refer *not to German grain*, but to *foreign grain in transit* through Germany at the outbreak of the war. The Swiss Government made strenuous and successful efforts to secure this grain, the property of private firms in Switzerland.

I am, Sir, yours faithfully,

Zürich, Feb. 25th, 1915.

THEO. ZANGGER, M.D.

SECURITY OF TENURE FOR MEDICAL OFFICERS OF HEALTH.

To the Editor of THE LANCET.

SIR,—I enclose copy of a letter I have received from the President of the Local Government Board, which you may care to publish.

I am, Sir, yours faithfully,

Gloucester-terrace, Hyde Park,
March 1st, 1915.

PHILIP MAGNUS.

[ENCLOSURE.]

Local Government Board, Whitehall, S.W.,
Feb. 26th, 1915.

DEAR SIR PHILIP MAGNUS,—I have given very careful consideration to the question of the tenure of office of medical officers of health and sanitary inspectors, which the deputation, which you introduced some months ago, brought before my colleagues and myself at the House of Commons.

Without fresh legislation, I could only deal with the case of officers whose appointments are subject to regulations made by the Local Government Board. These regulations at present allow a local authority the option of making

appointments terminable by three months' notice, or making permanent appointments. I am willing to alter these regulations so that, in the case of future appointments of whole-time officers, the officer shall continue to hold office until he is removed by the local authority with the Board's consent, or is removed by the Board.

I am advised that no Order could be issued which would, of itself, transform present temporary appointments into permanent appointments, but I should be quite prepared to suggest to local authorities that all officers holding temporary whole-time appointments should be re-appointed under the new terms.

The question of part-time appointments seems to me to be in a different category, and I am inclined to think that it is desirable that some inquiry should be undertaken into the general question of these appointments before any change is made in regard to the tenure of office of part-time officers. But such an investigation must, I fear, be postponed until more normal times.—Yours sincerely,

(Signed) HERBERT SAMUEL.

OPEN-AIR TREATMENT OF ACUTE SPECIFIC FEVERS.

To the Editor of THE LANCET.

SIR,—I am glad to see the letter of Dr. Philip Boobbyer in THE LANCET of Oct. 3rd, 1914, on this subject. At the Congress on Infant Mortality in 1913 I advocated the treatment of measles on the open-air principle. In the Malay Peninsula measles hardly ever causes a death, though epidemics of the disease occasionally occur. But if measles in the Malay Peninsula is taken into the ordinary hospital and at all crowded death is liable to occur from pneumonia.

In England it is said that notification is of no use for measles because the disease is infectious before diagnosis can be made, but without notification there can be no knowledge of the occurrence of the disease. And I believe that were all cases taken immediately into the open air, put into tents or any kind of structure which would give reasonable shelter from rain or snow, less would be seen of the broncho-pneumonia, and the 10,000 deaths that occur each year in England from this disease would be greatly diminished. I do not advocate the isolation of all contacts; they could be left in their homes, but the immediate transference to the open air of every case as soon as it occurred would, I believe, reduce the death-rate from this disease to a very low point.

I am, Sir, yours faithfully,

Jan. 26th, 1915.

J. TERTIUS CLARKE,
Health Officer, Kinta, Perak.

THE PROPHYLACTIC TREATMENT OF PUERPERAL INFECTION BY DILUTE SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—The letter of Dr. J. L. Moir in THE LANCET of Jan. 16th as to the use of dilute sulphuric acid as a prophylactic in labour induced me to try it. One case was that of a shoulder presentation in a contracted pelvis requiring considerable manual interference in turning and application of forceps to the after-coming head, together with manual extraction of the placenta due to irregular contraction of the uterus. The only temperature was 99.2° F. on the third and fourth day, when the breasts became distended, otherwise it was quite normal throughout the puerperium. Gloves were used and asepsis, as much as possible in a one-roomed tenement, attempted. Another case was that of hydrocephalus in which morbidity from septicæmia is

recorded as being high, but the temperature was below 99° throughout the puerperium, except when the breasts were full. In this case I should say that the delivery was spontaneous, the child having died some days previously, with the result that the head was quite flaccid, besides which the right parietal was quite membranous—no bone whatever to be felt, but the foetal membranes were much discoloured. Two cases are not much to come to a conclusion about, but I record them for what they are worth.

I am, Sir, yours faithfully,

City-road, E.C., Feb. 27th, 1915.

J. J. UDALE.

EARLY DIAGNOSIS OF CEREBRO-SPINAL MENINGITIS.

To the Editor of THE LANCET.

SIR,—May I suggest that an examination of the blood is of importance in the early diagnosis of this disease, as the latter is, in my opinion, essentially a coccæmia, and in addition to the presence of the diplococcus in the blood a marked polynuclear leucocytosis is present. This view is based upon the examination of 80 cases, with 30 controls, made in 1899.

In a recent lecture by Sir William Osler¹ mention is made of the presence of the germ in the blood.

I am, Sir, yours faithfully,

Colwall, Feb. 28th, 1915.

MARY H. WILLIAMS.

THE SALE OF DANGEROUS SHELL-FISH.

To the Editor of THE LANCET.

SIR,—In regard to the interesting annotation on this subject in your issue of Feb. 27th, it may be pointed out that the Royal Commission on Sewage Disposal and the Fishmongers' Company have rendered excellent service in indicating the directions in which public protection from contaminated shell-fish could be effected.

When numerous representations some time ago were made by local authorities to the Local Government Board to the effect that further powers were required to prevent danger to health from the consumption of shell-fish grown or fattened in polluted waters the matter was referred to the Royal Commission on Sewage Disposal. In their fourth report the Commissioners stated they were satisfied that a considerable number of cases of enteric fever and of other illness were caused by the consumption of shell-fish which had been exposed to sewage contamination, and they made certain recommendations for preventing the sale of polluted shell-fish for human consumption. So far no alterations in the law recommended by the Commission have been made, but last week the Local Government Board, as you reported, issued an order under powers which it possesses as an alternative procedure. In drawing up this order several suggestions made by the Fishmongers' Company have been acted upon. It seems to me that the coöperation of these two bodies has been most valuable and deserves some emphasis. There can be little doubt also that considerable delay in freeing the foreshores, layings, and ponds of pollution is avoided by the "careful examination by a trained person of these places without bacteriological examination of the water or the shell-fish" as recommended by the Commission.

I am, Sir, yours faithfully,

March 1st, 1915.

SANITARIAN.

¹ Brit. Med. Jour., Jan. 30th, 1915.

Obituary.

SAMUEL HERBERT HABERSHON, M.A.,
M.D. CANTAB., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO THE BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

IN Dr. S. H. Habershon, who died on Feb. 26th at the age of 57 years, the medical profession has lost an able and industrious exponent of our art. He had been in ailing health for a considerable time owing to frequent attacks of asthma, succumbing ultimately to sudden cardiac failure. He was the son of the late Dr. S. O. Habershon, formerly senior physician to Guy's Hospital. He received his medical education at Cambridge University and St. Bartholomew's Hospital, where he obtained the Kirkes gold medal and the Lawrence scholarship and gold medal. He also studied for some time in Vienna. He obtained his M.D. degree in 1887, and was made a Fellow of the Royal College of Physicians of London in 1891. He was at one time assistant physician to the Royal Hospital for Diseases of the Chest, and in 1893 was appointed assistant physician to the Brompton Hospital for Consumption and Diseases of the Chest, and full physician in 1902. He devoted himself wholeheartedly to the work of the hospital, and especially during recent years when the introduction of the Insurance Act carried with it "sanatorium benefit." By this time he was senior physician, and much attendance at committees and on deputations to various public bodies fell upon him. On all such occasions he did not spare any energy to acquaint himself with all the details of the movement, especially as it affected the Brompton Hospital. His experience and knowledge of the subject were fully appreciated by his colleagues, and his absence will be keenly felt. Amongst other appointments he had held the post of physician to the St. Marylebone General Dispensary, and he was one of the physicians to the Star Assurance Society. Although physician to a hospital for diseases of the chest, he had made a special study of diseases of the digestive tract, and his book on "Diseases of the Stomach" showed ample evidence of painstaking study and observation of gastric disorders. He was, it may be remembered, the medical attendant of Gladstone, the famous Premier, of whom he had principal charge during the closing period of his life.

By many friends he will be greatly missed, although during the last few years of his life the constant attacks of asthma prevented him from pursuing such an active life as he would have wished. He married the daughter of the late Richard Davies, M.P., Lord Lieutenant of Anglesey. His three sons, all of whom hold commissions in the army, and his widow survive him.

EDWARD COX SEATON, M.D. LOND.,
F.R.C.P. LOND.,

CONSULTING MEDICAL OFFICER OF HEALTH TO THE SURREY COUNTY COUNCIL.

Dr. E. C. Seaton, who died at his residence in Chelsea on Feb. 20th last, was the son of Dr. Edward Cator Seaton, medical officer to the Privy Council, and successor as medical officer to the Local Government Board to Sir John Simon, with whom he was closely associated.

Dr. Seaton was born in Chelsea in 1847, and received his early education at Tonbridge School. Subsequently he entered at St. Thomas's Hospital as

a medical student, and graduated M.B. with honours at the University of London in 1870, proceeding to the M.D. degree in the following year. After a short period of travel he commenced practice as a physician, and in 1872 was appointed medical officer of health of Nottingham, being the first whole-time officer for that town. This post he held until 1884, when he resigned and returned to London. Soon afterwards he was appointed medical officer of health of Chelsea and public analyst. In 1891 he received the first appointment of medical officer of health to the Surrey County Council, which he held until 1910, when he became consulting medical officer of health to this authority. Thus for over 40 years he was engaged in administrative public health work during a period of greatly increasing developments, actively associating himself with new movements, especially in the introduction of compulsory notification of infectious diseases. In connexion with his work he acted as Special Commissioner for the Home Office and Local Government Board in inquiries into the housing of the working classes, and frequently took a prominent part in the activities of societies engaged in promoting the health of the public. In the Royal Sanitary Institute he was particularly interested, and also in the Society of Medical Officers of Health and in the Epidemiological Society. On councils and at congresses he was always a good representative and speaker. From 1886, the year in which he was elected a Fellow of the Royal College of Physicians of London, to 1908 he was lecturer in public health at St. Thomas's Hospital Medical School, and he held the post of examiner in this subject at the Universities of Oxford, Cambridge, and London, and at the English Conjoint Board. He was also Government representative on the Sanitary Inspectors' Examination Board. As a Government nominee on the Metropolitan Asylums Board he did much useful work, particularly in getting the hospitals of that body opened for the instruction of students. In isolation hospitals he took a special interest, and in the Milroy lectures of the Royal College of Physicians in 1896¹ he dwelt mainly on the proper place of these hospitals in the reduction of infectious diseases. He established a system of isolation hospitals for infectious diseases and for small-pox in Surrey, and made his wide experience the theme of the Chadwick lectures, *Infectious Diseases and their Preventive Treatment*, which he delivered in 1910.

Dr. Seaton was greatly esteemed by all his colleagues, and the help and advice which he gave as county medical officer of health to the junior medical officers in the various districts of the county were much appreciated by them. Always taking his work and position seriously, he gave great care and attention to the arrangement and style of his official reports and indeed to all his writings, aiming at moderate views and conservative progress. In addition to the many reports and publications relating to official matters he was the author of the article on Vaccination in "Quain's Dictionary of Medicine," and collected and edited in 1886 Sir John Simon's *Public Health Reports*.

He married in 1875 the daughter of the late Dr. J. Waggett, who died in 1884, and afterwards, in 1892, married the daughter of the late Mr. John Marshall, F.R.S., P.R.C.S., and President of the General Medical Council, by whom he had one daughter.

W. OSCAR S. MCGOWAN, M.B., CH.B. EDIN.

Dr. W. Oscar S. McGowan, of Tabankulu, Pondoland, Cape Colony, whose death occurred recently from pneumonia at the early age of 31, was the eldest son of Dr. William McGowan, Maghera, Co. Derry. His early education was acquired at Foyle College, Derry, and Royal School, Dungannon. From the latter he proceeded to the University of Edinburgh, where he pursued his medical studies, and graduated M.B. and Ch.B. in 1906. He was house surgeon in the Cardiff and Leicester Infirmaries and then got a similar appointment in the New Somerset Hospital, Capetown, where he remained 12 months. On the recommendation of the Duke of Abercorn, chairman of the British South Africa Company, he obtained an important appointment from the Company near Salisbury, in Southern Rhodesia. Subsequently he was promoted to another appointment near Bulawayo in the service of the same Company, in charge of a native hospital.

In November last he took over a practice with the post of district surgeon attached in Pondoland, Cape Colony, and settled down with good prospects. Owing to his bright and genial temperament he was a universal favourite wherever his lot was cast. He was fond of outdoor sports, especially shooting, and in Rhodesia he had many opportunities of indulging in this pastime, even in the pursuit of big game.

Dr. McGowan was married in Salisbury in May, 1912, to Madlyn, daughter of the late Robert Warren, Cedarville, East Griqualand. His widow and one child survive him.

CHARLES HARPER, L.R.C.P. EDIN., M.R.C.S. ENG., R.N. (RETIRED).

Mr. C. Harper, who died at his residence, Bath-easton, Bath, on Feb. 16th, in his eighty-eighth year, became M.R.C.S. in 1849, and ten years later took the L.R.C.P. of Edinburgh. He entered the Royal Navy as surgeon in 1853, and served with the British Fleet in the Baltic during the Crimean War, and was present at the taking of Fort Bomorzund. Mr. Harper was well known and highly respected in Bath and the district, where he had an extensive practice. He was for 32 years medical officer of health of the Bath rural district council, and was also the first chairman of the Batheaston parish council. He leaves two sons, Brigadier-General G. M. Harper, D.S.O., of the Royal Engineers, who is on active service, and Mr. J. M. Harper, M.R.C.S., of Bath.

LUNACY IN LONDON.—A summary of the annual returns of lunacy presented to the London County Council on March 2nd showed that the number of persons for whom the Council is responsible to find accommodation had increased by 368, 40 per cent. in excess of the increase shown on Jan. 1st, 1914 (262), but considerably less than the average annual increase (458) for the last 25 years. The increase in the total number of lunatics in the county was also greater than last year, being 379 against 308, but here again this year's figure was considerably below the average (514). A satisfactory feature of the returns was the further reduction in the number of criminal cases in the county asylums. The Council had made representations to the Home Office as to the undesirability of this class of patient being sent to county asylums, and recently further accommodation for criminal lunatics had been provided by the State. The total number of patients (pauper, criminal, and private) in the asylums during the year was 20,589, and the number boarded out was 1108. The number of patients privately maintained had been reduced, apparently owing to losses caused by the war and the high cost of living.

¹ THE LANCET, vol. i., 1896, pp. 601, 698.

THE BELGIAN DOCTORS' AND
PHARMACISTS' RELIEF FUND.

THE CENTRAL EXECUTIVE COMMITTEE.

A MEETING of the Central Executive Committee was held on Thursday, Feb. 25th, at the offices of the British Medical Association, when the progress of the Fund announced was very satisfactory. Owing to the favourable terms obtained by Dr. Des Vœux for money left upon deposit with the bank, it was decided to invite those responsible for some of the local funds, now remaining in the hands of their local treasurers, to pay such contributions into the Central Fund at an early date. In this connexion it was reported that the Scottish Committee desired to work in complete coöperation with the English Committee and would appoint representatives on the executive.

Mr. Meredith Townsend, the Master of the Apothecaries' Society, reported that Mr. Samuel Osborn had expressed a willingness to take a selection of the surgical instruments sent in to the society to Belgium for use in certain hospitals behind the fighting line where they were required, and Sir Rickman Godlee said that he would help Mr. Townsend in making the selection, which would be mainly in the direction of cases of operating instruments.

A report was received from the treasurer which showed that the applications for help in money during the past fortnight had not been very numerous. A certain number of registration fees had been paid for Belgian medical men registering on obtaining work to do, and the general ignorance among the Belgian doctors of the English language appeared as the chief difficulty of finding appointments. The working of the clothes bureau at 3, Hyde Park-street, London, W., where Dr. Clément Philippe has kindly provided the necessary accommodation, proceeds successfully. Money was granted by the committee for the further purchase of clothes, especially of undergarments and boots.

MANCHESTER AND DISTRICT.

The total sum received to date is £336 15s. 6d., of which £32 8s. have been contributed by the general public. The committee hope that those medical men who wish to subscribe will send in their contributions at their earliest convenience.

Second List.

£ s. d.	£ s. d.
Dr. James Barr ... 5 5 0	Mr. Samuel T. Lord ... 1 1 0
Dr. James Melvin ... 5 0 0	Mr. J. F. Harvey ... 1 1 0
Mr. F. A. Southam ... 3 3 0	Mr. R. S. Hardman ... 1 1 0
Mr. A. Boutflower ... 2 2 0	Mr. W. H. Henshaw ... 1 1 0
Dr. J. Scott Taggart ... 2 2 0	Mr. R. Heathcote ... 1 1 0
Dr. A. J. Rodocanachi ... 2 2 0	Mr. E. Evanson Jones ... 1 1 0
Dr. A. E. Cotterill, R.A.M.C. ... 2 2 0	Mr. J. Williams Jones ... 1 1 0
Dr. A. Lomas ... 2 2 0	Dr. Compston ... 0 10 6
Professor Elliot Smith ... 2 2 0	Dr. S. Wilson ... 0 10 0
Dr. George Johnstone ... 2 2 0	Dr. J. Pringle ... 0 10 0
Dr. A. L. Cobban ... 2 2 0	Mr. Geo. Geddes ... 0 10 0
Mr. James A. Harris ... 2 2 0	
Dr. W. D. Macdonald ... 2 0 0	
Dr. Edmund Lee ... 1 1 0	
Mr. C. J. Dabbs ... 1 1 0	
Mr. Herbert Harris ... 1 1 0	
Mr. T. L. Jackson ... 1 1 0	
Mr. G. Burrows Brown ... 1 1 0	
Mr. R. W. Morrow ... 1 1 0	
Mr. James A. W. Watts ... 1 1 0	
Mr. Frank Holmes ... 1 1 0	
Mr. R. J. Warrington ... 1 1 0	
Mr. W. F. Boycott ... 1 1 0	
Mr. George Moreland ... 1 1 0	

From the General Public.

£ s. d.	£ s. d.
Miss Marian E. O. Wood ... 10 0 0	
Mr. W. H. Vaughan ... 5 5 0	
Mrs. Falconer ... 5 0 0	
Mrs. Allen ... 3 3 0	
Mr. Max Mayer ... 2 2 0	
Miss Annie Fryer ... 2 2 0	
Mr. Denham S. Boyd ... 1 5 0	
Mr. R. H. Day ... 1 1 0	
Miss Emily Owen ... 1 0 0	
Miss S. Barton ... 1 0 0	
Miss Barlow ... 0 10 0	

THE CANADIAN COMMITTEE.

The influential committee in Canada, which has been formed to coöperate with the British Fund, has appointed an executive committee with Dr. H. A. Bruce, F.R.C.S. Eng., as chairman, Dr. Walter McKeown as secretary, and Dr. D. J. G. Wishart as treasurer. The committee includes Dr. H. B. Anderson, President of the Toronto Academy of Medicine; Dr. R. E. McKechnie, President of the Canadian Medical Association; Dr. James McArthur, President of the Ontario College of Physicians and Surgeons; Mr. Pyne, the Minister of Education for Ontario; and Colonel Ryerson, President of the Canadian Red Cross Society.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

£ s. d.	£ s. d.
A Group of Practitioners at Newcastle-on-Tyne (per Dr. A. S. Percival) ... 14 12 0	Dr. S. Rees Philipps ... 1 1 0
Cie. Hermière de Vichy (per Dr. Clément Philippe) ... 20 0 0	Dr. F. W. M. Palmer ... 1 1 0
Mr. Harold Upcott ... 2 0 0	Dr. W. H. Pelle ... 0 10 6
Miss J. A. Vaughan ... 0 10 6	Dr. Mortimer Reynolds ... 0 10 6
South-West Wales Division, B.M.A. (per Dr. D. R. Price) ... 4 15 0	Mr. T. W. Smith ... 1 1 0
Mr. J. E. Coudrey ... 2 2 0	Dr. Lestock Thornton ... 1 1 0
Cardiff Division B.M.A. (per Dr. A. L. Thornley, Hon. Sec.) ... 1 1 0	Dr. Close ... 0 10 0
Dr. F. W. S. Davies ... 1 1 0	Mr. F. F. Laidlaw ... 1 1 0
Dr. Ewen J. Maclean ... 1 1 0	Mr. G. G. Gidley ... 0 10 6
Dr. H. C. Bevan ... 0 10 6	Dr. C. N. Lovely ... 0 10 6
Dr. D. A. Roberts and Dr. R. T. E. Davies ... 1 1 0	Dr. L. J. G. Carré ... 0 10 6
Dr. George Neale ... 1 1 0	Mr. W. G. Gray ... 0 10 6
Dr. J. C. Gilchrist ... 2 2 0	Dr. Arthur Robin ... 2 2 0
Dr. D. A. Fitzgerald ... 0 10 6	Dr. Robert Peart ... 5 0 0
Dr. Alfred Howell ... 1 1 0	Dr. W. F. Nellis ... 2 2 0
Dr. F. S. Living ... 1 1 0	Dr. R. Green ... 1 1 0
Dr. J. F. Cowrie ... 1 1 0	Sir Victor Horsley ... 15 0 0
Dr. A. L. Thornley ... 1 1 0	Lancashire and Cheshire Branch, B.M.A. (per Mr. Thomas O'Neill, Hon. Sec.) ... 1 1 0
Dr. Hosford ... 1 0 0	Prof. MacEwan, M.D. ... 2 2 0
Major I. O. Pinto, I.M.S. ... 1 1 0	North of England Local Belgian Fund (per Dr. James Don, Hon. Sec.) ... 2 2 0
Mr. J. W. Willis ... 1 1 0	Dr. Amy Robinson ... 2 2 0
Dr. R. T. Smith ... 1 1 0	Dr. W. C. Beattley ... 3 3 0
Dr. E. C. Montgomery ... 1 1 0	Dr. H. Gibson ... 1 1 0
Bristol Division, B.M.A.—	Dr. T. L. Bunting ... 5 5 0
Dr. Watson Williams ... 5 5 0	Dr. J. R. Foster ... 1 1 0
Dr. J. A. Askins ... 2 2 0	Dr. S. Fielden ... 1 1 0
Anonymous and small sums ... 8 1 6	Dr. J. G. Macaskie ... 1 1 0
Proceeds of Lecture by Mr. Hey Groves ... 10 0 0	Dr. T. Aitchison ... 1 1 0
Dr. Newman Neild ... 2 2 0	Dr. W. Fairclough ... 0 10 6
Mr. Joseph E. Adams ... 2 2 0	Dr. Shirlaw ... 3 3 0
Shropshire Branch, B.M.A. (per Dr. A. G. Mackenzie, Hon. Sec.) ... 1 1 0	Dr. J. Whyte ... 1 1 0
Dr. A. F. Whitwell ... 1 1 0	Dr. A. C. Burnell ... 5 0 0
Kesteven Division, B.M.A. (per Dr. C. H. D. Robbs, Hon. Sec.) ... 1 1 0	Dr. H. C. Pearson ... 2 2 0
Dr. J. A. Macdonald ... 2 2 0	Dr. H. L. Rutter ... 5 0 0
Dr. H. H. Ballachev ... 1 1 0	Dr. J. L. Speirs ... 1 1 0
Dr. Benson and Dr. Stanton ... 1 1 0	Dr. J. Taylor ... 1 1 0
Dr. J. Galletly ... 1 1 0	Dr. W. S. Campbell ... 1 1 0
Dr. Marshall Haver ... 1 1 0	Dr. H. M. Gurney ... 1 1 0
Dr. Jessie Hunter ... 1 1 0	Dr. J. Gemmell ... 1 1 0
Dr. A. H. Lowe ... 1 1 0	Dr. G. Yeoman ... 2 2 0
Dr. K. Pretty ... 1 1 0	Dr. A. N. Ross ... 2 2 0
Dr. C. H. D. Robbs ... 1 1 0	Dr. G. P. Harlan ... 2 2 0
Dr. G. A. C. Shipman ... 1 1 0	Dr. J. H. R. Garson ... 2 2 0
Dr. G. W. Shipman ... 1 1 0	Dr. Forrest ... 1 1 0
Exeter Division, B.M.A. (per Mr. A. C. Roper) ... 1 1 0	Dr. G. W. Weir ... 1 1 0
Dr. G. T. Clapp ... 1 1 0	Mr. H. A. Douglas ... 1 0 0
Dr. S. E. Atkins ... 0 10 0	Prof. Ranken Lyle ... 10 10 0
Dr. J. A. Frost ... 1 1 0	Sir Thomas Oliver ... 5 5 0
Dr. H. D. Depree ... 1 1 0	Dr. J. Middlemass ... 5 5 0
Mr. H. P. Tayler ... 1 1 0	Mr. A. S. Percival ... 5 5 0
Dr. P. Baillie ... 0 10 6	Dr. James Don ... 5 5 0
Dr. E. R. Tweed ... 1 1 0	Mr. Lister Gibbons ... 1 1 0
Dr. T. W. Sandoe and Dr. L. G. Davies ... 1 1 0	Norwich Division B.M.A. (per Dr. G. P. C. Claridge, Hon. Sec.) ... 1 1 0
Mr. Arthur Hudson ... 0 10 0	Mr. C. C. Claremont ... 1 1 0
Mr. T. O. de Denne ... 0 10 6	Mr. D. D. Day ... 3 3 0
	Dr. Hatch ... 1 0 0
	Dr. Leith ... 5 5 0
	Dr. Robert Miller ... 5 5 0
	Dr. James E. Beggs ... 1 1 0
	Birmingham Local Committee (per Dr. R. Saundby, Hon. Sec.) ... 1 1 0
	Dr. Wm. Welsh, proceeds of Whist party ... 12 12 0
	Dr. E. H. Addenbrooke ... 1 0 0
	Dr. Neville Crowe ... 0 10 6

£ s. d.	£ s. d.
London Pharmaceutical Association (per Mr. Uglove Woolcock)—	0 5 0
Mr. P. Stiles ...	0 10 0
Mr. R. Anderson, proceeds of Sale of German Shells...	1 11 6
Mr. C. W. J. Watkins ...	0 10 6
Mr. A. Chapman, second donation ...	0 10 0
N.E. London Pharmaceutical Association, collected by (per Mr. W. N. Scott)—	
Mr. C. E. Fox ...	2 2 0
Mr. A. Reid ...	1 1 0
Mr. J. D. Hodgson ...	1 1 0
Mr. T. Edwards ...	1 1 0
Mr. W. N. Scott ...	1 1 0
Mr. J. A. Thompson ...	1 1 0
Mr. E. Ward ...	1 1 0
Mr. H. Walker ...	1 0 0
Mr. S. Briggs ...	0 10 6
Miss Doris Hodgson ...	0 10 6
Mr. F. G. Ling ...	0 10 6
Mr. G. J. M. Lusher—	
Pentney ...	0 10 6
Mr. W. Wells ...	0 10 6
Mr. F. Peacock ...	0 10 6
Messrs. Brodribb, Ltd.	0 10 0
A Chemist's Widow ...	0 10 0
Mr. G. B. Barnard ...	0 5 0
Mr. G. S. Pasco ...	0 10 6
Mr. W. Broad ...	0 5 0
Mr. J. B. Clark ...	0 5 0
Mr. F. B. Elwell ...	3 5 0
Mr. A. Fayer ...	0 5 0
Mr. W. Hill ...	0 5 0
Mr. H. Taylor ...	0 5 0
Messrs. Rutters, Ltd.	0 5 0
Birmingham Pharmaceutical Association, collected by (per Mr. F. Smith), further contributions—	
Mr. T. Chase ...	2 2 0
Sports Section ...	1 5 0
Mr. D. Davies ...	0 5 0
Norwich Pharmacists' Association, collected by (per Mr. W. J. Lacey), further contributions—	
Messrs. Nuttall and Mason ...	2 2 0
Mr. H. Bridges ...	0 10 0
Mr. S. L. Gooch ...	1 0 0
Messrs. Fuller and Co. ...	1 1 0
Mr. J. F. Collin ...	1 1 0
Mr. J. Cossey ...	1 1 0
Mr. J. H. Denny ...	0 10 6
Mr. W. P. Hoare ...	1 1 0
Mr. D. Davison ...	0 10 6
Mr. D. Dulle ...	0 10 6
Mr. R. M. Ling ...	1 1 0
Nottingham and Notts Pharmaceutical Association, collected at a Lecture (per Mr. H. P. Middleton) ...	3 10 0
Mr. R. S. Dampney ...	1 1 0
Mr. C. H. Clarke ...	0 10 6

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £7200 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

"SPOTTED FEVER" IN ULSTER.—The Antrim board of guardians have decided to approach the authorities of Purdysburn fever hospital, Belfast, to make provision for cases of cerebro-spinal meningitis (spotted fever), several of which (four) have occurred in their district, two of them being in the military camp at Randalstown. A case is also reported from the Clondeboy camp.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton House, Westminster, on Feb. 17th, Sir Francis H. Champneys being in the chair. A number of midwives were struck off the roll, the following charges amongst others having been brought forward. A patient suffering from puerperal mania, and the midwife having explained that the case was one in which the attendance of a registered medical practitioner was required, she neglected to hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner, as required by Rule E.19, and medical aid having been sought as aforesaid, she neglected to notify the local supervising authority thereof, as required by Rule E.21 (1). The midwife not being scrupulously clean, as required by Rule E.1; not taking and recording the pulse and temperature of patients, as required by Rule E.13; that when called to a confinement the midwife did not take with her the bag and appliances prescribed by Rule E.2. That with intent to avoid inspection and supervision the midwife abstained from notifying the local supervising authority of her intention to practise as a midwife, as required by Section 10 of the Midwives Act, 1902. The midwife did not wear a clean dress of washable material, as required by Rule E.1. A child being born apparently dead, the midwife neglected to carry out any method of resuscitation, as required by Rule E.14. That being in attendance as a midwife at a confinement, and the child having died before the attendance of a registered medical practitioner, the midwife neglected to notify the local supervising authority thereof, as required by Rule E.21 (1) (b). A midwife, notwithstanding repeated warnings and instruction, persistently neglected to comply with the rules of the Central Midwives Board, and she did not keep her register of cases as required by Rule E.23.

The War.

HONOURABLE MENTION IN ADMIRAL BEATTY'S DESPATCH.

AMONG those officers mentioned in the despatch of Admiral Sir David Beatty referring to the naval action in the North Sea on Jan. 24th is the name of Surgeon-Probationer James Alexander Stirling, R.N.V.R., H.M.S. *Meteor*, on whom the King has conferred the Distinguished Service Cross.

THE CASUALTY LIST.

The casualties among officers in the Expeditionary Force reported since our last issue include the names of Lieutenant E. H. Moore, R.A.M.C., Lieutenant T. M. Davies, R.A.M.C., and Captain S. J. Linzell, R.A.M.C., who have been wounded.

THE BRITISH INTERNMENT CAMPS.

A Swiss correspondent writes: "A report which has been compiled by Professor Edward Naville, a member of the International Committee of the Red Cross Society, and M. Victor van Berchem on the conditions prevailing at the British internment camps should finally silence criticisms upon this subject in the German medical and lay press. The report of these delegates will be published shortly, but the extracts which have been supplied to the Swiss press clearly indicate its tenor.

The delegates, who were given entire freedom of inspection by the War and Foreign Offices, speak in the highest terms of praise of the treatment accorded both to the civil and military prisoners. The food, they state, is excellent; the rooms well-lighted and admirably heated; the sanitary conditions all that could be desired. Although they questioned a considerable number of prisoners they did not hear one single complaint. The Swiss delegates visited the ships upon which a considerable number of Germans are imprisoned, and their impressions were entirely satisfactory. They nevertheless express the view that on the return of warmer weather the prisoners should be transferred to the shore camps. So far as can be gathered from the published summary of their report the arrangements for the spiritual care of the prisoners alone meet with criticism. These arrangements, they state, are altogether insufficient, at one camp the clergyman who ministered to the needs of the Roman Catholic prisoners not knowing one word of German.

Emphasis is laid upon the fact that there are no women or children in the civil internment camps, and the report concludes as follows: "We do not hesitate to state that our impression was very satisfactory. The prisoners—above all, the soldiers—are well treated, and in adopting the principle that their life should entirely resemble that of English soldiers the Government has cut away the ground for any kind of complaint. These prisoners, in fact, could not be better treated. In particular, we heard not a single complaint against the soldiers who guard the prisoners or against a single Englishman with whom these latter had dealings. Nothing is allowed to hurt their feelings as soldiers or as patients. Our conclusion is that neither the German Government nor the families of the prisoners need have any anxiety about those interned in the camps in England."

VOLUNTARY HOSPITALS AND WOUNDED SOLDIERS.

In THE LANCET of Jan. 16th we published a short account of the steps taken by the Council of the British Hospitals Association to coördinate the various conditions under which the voluntary hospitals of Great Britain are receiving wounded soldiers for treatment. After consultation with a number of hospital secretaries the council made an application to the War Office to deal upon the basis of uniform scale of payment with those voluntary hospitals desiring payment for this service. The joint honorary secretaries of the association now announce that a reply has been received from the War Office to the following effect:—

That the general principle adopted as to payment for hospital accommodation for wounded soldiers is that the hospital concerned should take up the question with the general officers of the command or district in which the hospital is situated, with a view to fixing a reasonable rate of payment, having regard to the circumstances of each case. It will be obvious that considerable variation in the rates paid is inevitable in the circumstances, but the Council are of opinion that the system adopted is that best suited to meet the needs of the situation and has, so far as they know, worked satisfactorily hitherto.

In these circumstances the Council of the British Hospitals Association recommend the voluntary hospitals who have not already made arrangements for payment, but who desire payment to be made for these patients, to apply to the local military authorities as suggested by the War Office.

TRENCH FEET.

The following descriptive diary on trench feet, from the pen of an officer suffering from so-called frost-bite, has been forwarded to us by the Director-General, Army Medical Service, Overseas, for publication in THE LANCET:—

Jan. 18th: Put vaseline on my feet, then two pairs of socks and ammunition boots, and marched to trenches, about four miles. Spent quite four hours of the night walking from one trench to another, getting wet frequently up to the knees and once nearly to hips, but did not feel cold all night, as I was all the time on the move.

Jan. 19th: Feet cold occasionally by day. I then stamped them on trench boards. I did not change socks, as the others would have been wet at once. At night same as previous night.

Jan. 20th: Morning and afternoon same as 19th. At about 8 P.M. relieved and went back to a barn where I took off my socks and got rid of mud which was rubbing my heels slightly. After this they were quite comfortable.

Jan. 21st: At 6 P.M. marched back four miles to billets, feet feeling all right, though not comfortable. Soles feeling a little bruised, as still very muddy. Half an hour after I got into billet ankles felt stiff, and in two hours feet were rather painful. I took off socks and found both feet swollen up to above ankle and skin very tight and inflamed. Rubbed on cod liver oil.

Jan. 22nd: Could not put feet to the ground. Soles very tender and ankles felt as if they would turn over if I put weight on them. From now to the 30th my feet were massaged daily by battalion chiropodist with turpentine oil.

Jan. 25th: Most of the swelling had disappeared from ankle and instep, but ball of big toe and under all toes very painful so that I could not put toes on the ground. Also outer edge of foot painful. Both feet always felt like icicles, but were very hot to touch and were actually sweating. Circulation in toes was very slow, began to be very painful at night, even weight of blanket hurt them. By day feet were bandaged in wool and puttees, and I used to keep them up on a chair. When they became very painful it eased them to stand upon my heels for a time.

Jan. 25th to Jan. 31st: Went on as above and could hobble about a room as long as I kept toes off the ground. Ankles now strong again.

Jan. 31st: Sent to No. 2 Clearing Hospital, Bailleul, and down by train that night to Rouen, where I arrived on the evening of Feb. 1st. Keeping them up for this 48 hours (as

I was lying down all the time) made them much more tender, so that when I got to Rouen I could not put right foot to ground at all.

Feb. 1st to 5th: In bed, feet generally rather painful and at times acutely so. Putting them above my head when painful sometimes relieved them. More painful by night. When pain comes on I can hardly bear them lying on the bed. Ball of big toes still very swollen. I cannot yet work my toes. On Feb. 4th ankles swelled again slightly. The ankles feel as if they had been badly wrenched. The pain in the feet is best described as like that experienced by holding snow in one's hands for a long time, combined with the idea of one's feet being in a vice and being squeezed inwards. Occasionally there are shooting rheumatic pains up the legs.

THE LADY HARDINGE HOSPITAL FOR INDIANS.

The Lady Hardinge hospital for sick and wounded Indian soldiers from the front is situated at Brockenhurst in the New Forest, in the grounds of Brockenhurst Park, which have been lent for the purpose by Mrs. Morant. The hospital has been built and organised by the Indian Soldiers' Fund under the auspices of the Order of St. John of Jerusalem in England. The cost of construction was borne by the War Office, which also makes the usual daily payment for each inmate, while the expenses of equipment, maintenance, and administration are being undertaken by the fund. The work of building the hospital was begun in the middle of November last, and the first patients were received on Jan 20th; since that date a considerable number of Indian soldiers have been under treatment.

The hospital stands on high open ground with deep gravel subsoil. It contains 500 beds arranged in 20 wards, each with 25 beds, and 2 isolation wards of 8 beds each. The general wards are grouped on each side of two long parallel corridors, which communicate with each other and with the operating and administration blocks by means of a transverse corridor. Each ward unit is 140 ft. long by 20 ft. wide. It consists of the ward proper (90 ft. in length), and an annexe comprising sisters' rooms, ward kitchen, private ward for one native officer, boot passage, bathroom, and latrine. The operating block consists of clean theatre with sterilising, preparation and anaesthetic rooms, septic theatre and dressing-room, and fully equipped X ray room. The administration block consists of entrance hall, board room, orderly officers' room, dispensary, offices for commandant, registrar, and clerks, clinical laboratory, and well-equipped bathrooms for patients on admission. Separate blocks are set apart for recreation and dining-rooms for patients, self-contained kitchens for Hindu and Mahomedan cookery, admirable supply depôts and store-rooms, disinfection house, and completely detached quarters for medical staff, nursing staff, maids, orderlies, and military guard. The entire hospital is built on the one-storey hut system. The material is galvanised iron lined with plaques of "three-ply" boarding or asbestos composition. Heating is supplied by three steam radiators, and electric light is generated by an oil engine within the grounds, while water is laid on from the Southampton Water Company's supply. The hospital is drained by a water-carriage system leading to two large septic tanks. The medical staff consists of the commandant, Lieutenant-Colonel F. F. Perry, C.I.E., late Principal of Lahore Medical College, assisted by Lieutenant-Colonel C. H. L. Meyer, formerly Professor at the Grant Medical College, who is second in command, and Lieutenant-Colonels W. H. Burke, M. A. T. Collie, J. B. Gibbons, H. Herbert, J. B. Jameson, and H. B. Melville, Major E. O. Thurston, and Lieutenant H. C. G. Semon—all of the Indian Medical Service, past or present. The matron, Miss McCall Anderson, is assisted by 2 assistant matrons, and 16 Hindustani-speaking trained nurses, who have general charge of the nursing and domestic arrangements. Under these there are 60 English orderlies from the St. John Ambulance Brigade, and a menial native staff of some 60 cooks, water-carriers, sweepers, and so on.

On Tuesday last a member of the editorial staff of THE LANCET was given an opportunity of

inspecting the entire institution, under the guidance of Lieutenant-Colonel Perry and Lieutenant-Colonel Meyer, and was much impressed by the manner in which the special and peculiar needs of Indian soldiers have been provided for without interference with ordinary hospital requirements. Every department bears witness to the skill and the special knowledge of native requirements possessed by those responsible for the design and equipment of the institution.

BEHIND THE FRENCH LINES.

The following notes of six interesting cases have been communicated to us by Dr. Machard, surgeon to the Pinchat Hospital, Geneva, acting as surgeon to the French Red Cross Hospital, No. 113, at Chambéry:—

CASE 1.—Skull wound. Fracture of skull, occipital, by contact. Injury inflicted by shrapnel ball, causing seton wound in the soft parts. When the man came under my care he had been suppurating for three weeks at least, and he complained of vertigo, headache, visual disturbances, and stupor. These symptoms were gradually getting worse. I made a valvular incision, exposing an oval fracture with depression of the external table: some splinters of bone were scattered round and the wound exuded pus. I opened up the seat of the fracture with the chisel and gouge, removed the splinters, and curetted the diploë, which was filled with pus. The internal table was intact. The cerebral symptoms rapidly subsided and the suppuration ceased.

CASE 2.—Tangential wound of the skull by rifle bullet. The aperture of entry was on the top of the head in the bi-auricular line, and the aperture of exit in the right mastoid region. He had been trephined in the mastoid region in a hospital in the first line, but there remained left hemiplegia which is improving daily.

CASE 3.—Penetrating wounds of thorax. Bullet entered the thorax on the edge of the eighth rib. No infection, no reaction, rapid recovery. The ball was seen in the radiogram lying in the right hypochondrium.

CASE 4.—Penetrating wound of the left lung. Went in through the left eighth interspace 2 centimetres from the median line. Radioscopy showed the missile in the abdominal cavity near the cæcum. No infection. Signs of pleuro-pneumonia. Recovery in six weeks.

CASE 5.—Bullet entered through the second right costal interspace 9 centimetres from the edge of the sternum. Hæmothorax. The missile could be seen in the radiogram near and just above the right kidney. No infection. Recovery in nine weeks.

CASE 6.—Bullet went in 6 centimetres above the angle of the left scapula. Perforation of the upper lobe of the left lung. The missile was seen in the radiogram in the anterior inferior cul-de-sac of the pleura. Recovery in ten weeks.

Dr. Machard notes: All the patients with infected or stinking wounds on arrival at the hospital were given 10 c.c. of antitetanic serum hypodermically. We lost two patients from tetanus, but this was already present on admission. We only had one case of secondary hæmorrhage from the posterior tibial artery, following a wound of muscle by shell. The bleeding was arrested by forceps, which were left on, as no ligature would hold on account of the gangrenous state of the tissues.

From the Hôtel Mirabeau (Formation Sanitaire), Aix-les-Bains, a special correspondent has sent us some notes of interesting cases which have been under his hands:—

CASE 1.—Extensive cellulitis necessitating 54 inches of incisions. The wounded man, 26 years of age, was a motor-cycle messenger. He had delivered his message on Sept. 5th and was lolling on the grass when he heard a shell coming. Experience enables one to know whereabouts a given shell will fall, and as he estimated that it would fall in his immediate vicinity he jumped to the nearest wall with his

hands before his face. The shell struck the wall and exploded, the fragments inflicting numerous small wounds all over the head, smashed both wrists, and ploughed up both thighs. He did not think he was seriously injured, and had his wounds dressed at the nearest *poste de secours*, 100 yards away. There he remained until 6 o'clock the next morning when he was conveyed to the ambulance. There he passed the day, and at 8 A.M. on the second day he was placed in a cattle truck. The train remained all day in the siding and did not start until 10 P.M. It took a day and a half to reach its destination, during which period the patient had had no medical attention and very little food. He was in a pitiable plight on arrival, exhausted from loss of blood and lack of suitable food. He was found to be suffering from septic cellulitis especially affecting the right lower extremity. The pus burrowed right up into Scarpa's triangle and down past the knee into the ankle. The sinuses passed deeply into the thigh and between the muscle bundles, and ultimately the fascia lata as a whole sloughed and came away in ribands. The pus was quite blue and was horribly offensive as well as extremely copious. Fresh incisions had to be made almost daily to combat the tendency to burrow, the wounds being dressed with iodoform-glycerine (10 per cent.). The total length of the incisions amounted to something like 54 inches. The wrists also became septic and had to be freely incised. The patient was absolutely helpless for upwards of three months. He had to be dressed daily, and for some weeks each dressing had to be done under chloroform so great was his suffering. He was lucky enough to be in the hands of an English nurse (I give her name, Nurse Green), who devoted herself to the care of this long-suffering man, and to her assiduity in great measure his ultimate recovery is due. His temperature during the first few weeks was high, averaging 39° C. He was given large, repeated, intravenous injections of electrargol to combat the infection. It is now four months since he received the injury and he is beginning to hobble round on crutches. It is anticipated that he will regain almost perfect functional use of his limbs.

CASE 2.—Extensive suppurative cellulitis with septic arthritis of knee. Artilleryman. Sustained shell wound of knee and lower end of thigh also on Sept. 5th. He was three and a half days on the journey to the auxiliary hospital. The wounds were already infected and he developed extensive cellulitis necessitating some 52 inches of incisions. Suppuration was profuse, the pus being horribly offensive and light blue in colour. Temperature at or about 40° C. for three weeks. Then septic arthritis of the knee occurred and the joint was opened up, irrigated (iodine water) and drained. Later on he was found to have a large abscess of the calf which was also deeply incised. Meanwhile, in spite of every care, an extensive bed sore formed which gave a great deal of trouble. It finally yielded to a hammock mattress. The patient was a robust, finely built man, and this stood him in good stead, but he became dreadfully emaciated. In this case, too, large repeated injections of electrargol were given to combat the septicæmic condition, with apparent benefit, the temperature, in spite of an immediate rise, always falling after an injection for several hours. It was not until after the expiration of four months that the patient began to be able to get about. The knee is stiff, but there is promise of restoration of movement.

From these cases it is possible to judge of the admirable recoveries that are being made from severe, extensive, and very dangerous injuries, while we get a glimpse of the appalling horrors of those early days of the war, before the transport and care of the wounded could possibly be provided for.

BRITISH RED CROSS SOCIETY.—The summary of the work for the week ending Feb. 27th shows that the society and the Order of St. John of Jerusalem have been persistently busy on behalf of the sick and wounded. At the Netley Red Cross Hospital a total of 388 patients are being treated, amongst whom are a small number of Indian and Belgian troops. The Canadian Red Cross Branch has contributed to the joint funds over \$100,000 to date in addition to large supplies of hospital comforts. The King of Portugal has presented the convalescent home

for British officers at Brighton, which is now opened and which will be personally supervised by His Majesty. Other convalescent homes for officers have been opened at Bath, at the Chateau de Thorenc at Cannes, and at Parkstone, near Bournemouth. Queen Alexandra has presented portraits of herself and King Edward for placing in the King George Hospital, London, and a portrait of herself, which is now placed in the sick bay of the *Queen Alexandra* hospital ship.

KING GEORGE HOSPITAL.—The names of the consulting and visiting medical and surgical staffs of the new King George Hospital have already appeared in this column. The staffs of the various special departments have now been completed.

Department for Diseases of the Throat, Nose, and Ear.—Sir StClair Thomson, Dr. Dundas Grant, Mr. Herbert Tilley, and Mr. Arthur Cheate.

Ophthalmic Department.—Sir Anderson Critchett, Sir William J. Collins, Mr. Ernest Clarke, and Mr. William Lang.

X Ray Department.—Dr. W. Ironside Bruce, Dr. Stanley Melville, and Dr. G. Harrison Orton.

Anæsthetics.—Sir Frederic Hewitt, Dr. G. A. H. Barton, Dr. H. Whitelaw Bourns, Mr. C. C. Braine, Dr. Dudley Buxton, Mr. J. H. Chaldecott, Mr. Herbert Charles, Mr. Richard Gill, Mr. Harvey Hilliard, Mr. R. W. Lloyd, Dr. C. J. Loosely, Dr. Harold Low, Dr. V. B. Orr, Mr. H. M. Page, Dr. Hugh R. Phillips, Dr. Llewellyn Powell, Dr. W. E. Robinson, Mr. George Rowell, Dr. Francis E. Shipway, Mr. Hedley C. Visick, and the Hon. Sir John McCall.

Pathological and Bacteriological Department.—The governing body of the Lister Institute have placed the services of Dr. J. C. G. Ledingham, Dr. W. J. Penfold, and Dr. P. H. S. Hartley at the disposal of the authorities for the bacteriological and pathological services of the new hospital. Fully equipped pathological laboratories, post-mortem rooms, &c., are being arranged for in the adaptation of the new Stationery Office. Dr. Ledingham will be in charge and the bulk of the work will be carried out at the hospital. The Lister Institute will, however, serve as a base for the preparation of culture media, &c., and the advantages of its laboratories will be available for observations requiring more extensive equipment than will exist at the hospital.

Dental Department.—The dental surgeons to the new hospital are as follows: Mr. F. W. Barrett, Mr. W. A. Maggs, Mr. Morton Smale, Mr. Sidney Spokes, Mr. Arthur Underwood, and Mr. C. E. Wallis.

The establishment and equipment of a hospital of five floors of an acre and a half each, with beds for 1650 sick and wounded soldiers—to say nothing of the resident staff—is, of course, a great undertaking. It is being carried out by a small committee consisting of Sir Frederick Treves, Sir Rowland Bailey, and Mr. Edmund Owen, in consultation with the members of the visiting staff. Most of the contracts for surgical apparatus and instruments have already been placed. Each of the six operating theatres will have a working set of instruments, and in addition there will be a central store from which instruments for special operations will be supplied on demand.

2ND WESTERN GENERAL HOSPITAL.—At the commencement of the war the general impression of Manchester citizens was that it seemed absurd to establish a military hospital in the city with 520 beds so far away from the fighting line, and very few could have foreseen or even believed that Manchester would have become one of the chief centres of life and energy in the care of our sick and wounded soldiers, or that the original 520 beds established in buildings erected for other purposes than hospitals would have expanded within four months into a central hospital of 543 beds, and auxiliary, civil and private hospitals, 120 in number, providing 3683 beds, making a grand total of 4526 beds available for the Embarkation General at Southampton to evacuate the hospital ships into. Manchester has indeed risen to the occasion in this matter as it has proved successful in raising new battalions and recruits. The labour entailed in organising and conducting such a work has been carried out in what Lancashire likes to regard as "a true Lancashire spirit," which has enabled all to work together with regularity, energy, and enthusiasm. The original trained nucleus of 3 officers and 43 rank and file was increased on enlistment by 66 men, and on recent expansion by 68 more. Many of these had seen previous service

in the Regular and Territorial Royal Army Medical Corps, and others were expert clerks in civil life, for the clerical work requires a staff of 15 men, working many hours a day—often far into the night. The correspondence amounts to some hundreds of letters a day.

The arrival of a hospital train is a frequent event and each train brings 100 to 250 soldiers in a little over seven hours' running from Southampton. Each train is made up of wards fitted up with 20 cots in each coach in two tiers running the length of the train on either side, and coaches with compartments at either end for sitting-up cases. The train is in charge of an officer of the Royal Army Medical Corps, with 2 nursing sisters and 10 non-commissioned officers and men, who attend to dressings and emergencies en route. There is a small operating theatre, close to which is a dispensary and an office where the list of men carried is made out, as well as a kitchen where meals are cooked for the journey, and a saloon for the staff to live in.

The greatest pressure was experienced at the hospital on Oct. 31st and Nov. 1st, when a sudden expansion of the hospital was called for at a time when all but 150 beds were occupied. In the middle of the night a telephone call from Southampton revealed the fact that there were 7000 wounded at Southampton without sufficient beds to receive them. The General begged for 800 beds, and these were promised if 24 hours were allowed to arrange for them. In less than three hours 628 beds were promised in civil and private hospitals, and the remainder were provided a few hours later by taking over a new school building with the help of the contractors who had equipped the hospital at the commencement. In six trains arriving during two successive nights and with evacuating all day from the main hospitals no less than 823 sick and wounded were admitted in 26 hours to the 2nd Western General Hospital, and there were 90 empty beds to spare. This could not have been accomplished without the assistance of the British Red Cross Society and their splendidly organised fleet of motor transports, consisting of 36 ambulances and 170 motor-cars, in addition to 10 ambulances generously offered and efficiently handled by the Manchester police, who have turned out at all hours for a train call. It would be difficult to find a more suitable detraining station than Mayfield (adjoining London Road Station), which the London and North-Western Railway Company reserve for this service to the exclusion of the public. It cannot be overlooked and has a long platform with a wide roadway the whole length of it. Eighteen ambulances and 30 cars in single file can be accommodated so that the whole train may be evacuated at once. The command of the station is under the charge of the registrar of the hospital, who is assisted by a staff of 4 officers and 24 men, and frequent practice has enabled the men to work quietly and rhythmically in taking out the wounded, so that the time occupied has been reduced to a minimum, the average for a train containing 150 men, including 50 cot cases, being 18-20 minutes from start to finish.

The nature of the cases has altered somewhat. At first all but 5 per cent. were wounded and many severely, but since the wintry weather began about 33 per cent. of sick have been included in each convoy. Several hundred cases of frost-bitten feet have been received, as many as 300 arriving in three train loads. Very few deaths have occurred. The total amounts to 45, of which 11 have been from tetanus. Again, of these 7 were Belgian soldiers who had not received the injection of antitetanic serum that British soldiers receive immediately after being wounded. Only 8 cases of enteric fever have occurred, of which 2 have died. None of the cases had been inoculated. Of 8204 patients, there were 1272 Belgian officers and men and 33 German wounded prisoners. The operations performed in the hospital total 739, and examinations by means of X rays on over 1000 patients. The hospital has received very many gifts from all classes and societies, and the smooth working is in a large measure due to the unfailing readiness of every member of the community to do all in their power to help the brave fellows back to health.

ABERDEEN UNIVERSITY AND THE WAR.—At a meeting of the Aberdeen University Senatus held on Feb. 23rd Principal George Adam Smith reported that in addition to the 767 names contained in the provisional list of Nov. 30th of members of the University who were serving on naval and military service, about 239 names had been

communicated to him of members of the University who had received commissions or who had enlisted. The total number of graduates, alumni, and students on military service or under training was now over 1000, and in addition 15 members of the teaching staff were also serving with the colours. It was decided that owing to the exceptional circumstances prevailing no honorary degrees should be conferred at the forthcoming spring graduation.

VACANCIES FOR MEDICAL OFFICERS.—We are asked to state that there are vacancies for two medical officers in the 2nd Line Welsh Border Mounted Brigade Field Ambulance. Pay and allowances as in the Regular army, also a grant for outfit and camp kit. Further particulars can be obtained on application to Major D. C. Leyland Orton, R.A.M.C. (officer commanding), Thomas-street, Chester.—There are also several vacancies for suitable, qualified, medical officers in the 1st Welsh Border Mounted Brigade Field Ambulance. Applications should be made to Lieutenant-Colonel A. G. Hamilton, R.A.M.C. (T.), Officer Commanding, 30, Station-road, Beccles, East Suffolk.—Colonel Morgan asks us to state that a number of Welsh medical men are required to take up temporary commissions in the Royal Army Medical Corps for duty with the field ambulances and regimental units of the Welsh Army Corps. Applications should be made to the A.D.M.S., 43rd Welsh Division, Prestatyn, North Wales, stating age and qualifications, and any previous experience of military medical work.

THE MILITARY SERVICE DE SANTÉ.—Our Paris correspondent writes:—"The direction of the Service de Santé has organised in every district of the war area special services of neurology, psychotherapy, ophthalmology, otorhinolaryngology, maxillo-facial prosthesis, orthopaedics, urology, and psychiatry. For each specialty in each district there has been established a central service, with secondary services so situated in different towns that the soldiers may easily be evacuated to them. At the head of each of these organisations has been stationed a district médecin chef, who treats the patients and the wounded despatched from the front to the central service, supervises the hospital establishments of the district, and picks out the sick and wounded suitable for treatment by the special service, taking them in at the central service or sending them on for treatment at secondary centres. He also receives the scientific and practical returns of the work of the various special centres in his district. Each month he makes a résumé of reports that seem of special interest, adding to them the results of his own personal practice for communication to the direction of the Service de Santé and to the chiefs of the organisations of the corresponding specialties in other districts. The exchange of these communications is bringing about useful modifications in technique and in the *modus operandi* of the services."

ROYAL PORTSMOUTH HOSPITAL AND THE WAR.—The annual report and balance sheet for 1914 of the above hospital was presented to a meeting of subscribers held in the Town Hall, Portsmouth, on Feb. 26th. It shows that the number of civilian in-patients was 2462, and military 206. Two wards were placed at the disposal of the military authorities for the reception of wounded soldiers in November. The daily average number of beds occupied was 148 and the average cost per bed occupied was £61 17s. 10d. The expenditure amounted to £10,144 and ordinary income to £7192, leaving a deficit of £2952. Legacies amounted to only £220. With the desire not to compete with the war funds the usual Hospital Saturday collections were not undertaken, and increased cost of provisions and medical and surgical requisites have aggravated the deficit. Owing to a powerful appeal of the *Portsmouth Evening News* the sum of £2224 was subscribed for the purchase of radium. All the honorary staff have been serving under the Crown in various directions associated with the war, and have in consequence not been able to give so much time as usual to their duties at the hospital. The resident staff have met the extra demands thrown upon them cheerfully and skilfully.

WIND CONTUSIONS.—M. Sencert reports to the Société de Chirurgie the case of a man who was killed by being less than a yard away from the point of explosion of a bursting shell of large calibre. He had not even been grazed by any metallic fragment and had no external wound, but at the necropsy both his lungs were found to be burst. Many deaths

under similar circumstances have been noted since the outbreak of the war, for which various more or less complicated explanations have been given. Fulminating toxic gases from the explosion and sudden nervous shock have been suggested as causes. M. Sencert points out that these hypotheses are unnecessary, and that a purely mechanical cause is a sufficient explanation.

FIRE PRECAUTIONS AND THE WAR EMERGENCY.—The British Fire Prevention Committee's special organisation to meet the war emergency completed its first half year's work this week. The work comprised mainly an extensive issue of fire warnings, the creation of a technical inquiry office to deal with all manner of technical inquiries, and the formation of a special fire survey force of 80 honorary fire surveyors entrusted with special duties, and of a special fire service force of 300 fire brigade officers and men available for mobilisation at short notice. More than 100,000 "fire warnings" in the form of small posters have been issued by the committee and distributed either directly or through the Government departments and other public authorities concerned. Such "warnings" were specially prepared for military hospitals and refugee hostels (translations in French and Flemish also being made available for Belgian wounded and Belgian refugees). There were "fire warnings" for farmers as to grain storage, for troops billeted, and for factories engaged on Government supplies.

Mr. C. D. Menzies has presented his West Linton residence of Lynehurst as a military hospital for 16 patients. The matron is Sister Campbell, and the institution will be staffed by the local members of the Voluntary Aid Detachment.

Medical News.

UNIVERSITY OF CAMBRIDGE.—On the recommendation of the State Medicine Syndicate of the University the examination for the Diploma in Psychological Medicine will not be held in the present academical year.—The following medical degree has been conferred:—

M.D.—A. E. Stansfeld, St. John's.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 24 cases were considered and grants amounting to £290 were voted to 22 of the applicants. The following is a summary of the cases relieved:—

Widow, aged 68, of M.R.C.S. Eng. who practised in London and died in 1892. Has managed to live with the help of friends and the rent of a house, but has had to mortgage it from time to time with the result that the net income from it is very small indeed. Health very bad and is crippled with torn muscles and quite helpless. Voted £10.—Widow, aged 41, of M.B. Aberd. who practised at Easter Maubeen and died in 1914 from phthisis. Had been ill some time and was unable to provide for his wife and four children, ages 1 year to 6½ years. Only income interest on £900. Voted £10 in two instalments.—Daughter, aged 76, of M.R.C.S. Eng. who died in 1874. Practised at Plymouth. No income, but lives with widowed sister whose very moderate income has depreciated by more than one-half on account of the war. Voted £5 and recommended to apply for the Old Age Pension.—Daughter aged 24, of M.D. Edin. who practised at Stanley, N.B. Mother was for many years a grantee of the Fund. Family of six children, ages 24 to 17. Help wanted for the completion of the education of the two youngest children. Voted £10 in two instalments.—Wife of M.R.C.S. Eng., aged 36. Husband is insane, but provided for by his brother. Three children, the two eldest, ages 14 and 12, also being educated at the brother's expense. The applicant is in an advanced stage of phthisis and the youngest child, aged 9 years, is with her. They live with two aged aunts who are very badly off. Voted £18 in two instalments, £12 at once and £6 in six months.—Daughters, aged 79 and 82 years, of M.R.C.S. Eng. who practised in London. Used to earn a little by teaching music, and with the few investments they had could manage, but owing to age and ill-health have had gradually to realise their investments, and now are left penniless. Voted £12 in 12 instalments each, and recommended for annuities.—Widow, aged 64, of M.D. St. And. who practised at Camberwell, and was for some years an annuitant of the Fund. Left totally unprovided for at her husband's death this year. Three children, but none able to help. Voted £18 in 12 instalments.—M.R.C.S. Eng., aged 79 years, who practised at Camberne and other places, was hard hit by the Insurance Act, and in consequence of the war so many people have left the village that his small practice has practically gone, and has only earned about £11 during the last six months. Voted £18 in 12 instalments.—Daughter, aged 68, of M.R.C.S. Eng. who practised at Box, Wilts. Lives with a very delicate sister, who is also a grantee of the Fund. Has £12 a year from another charity, and sometimes earns about £1 per month by acting as a companion. Previous relief partly in conjunction with her sister seven times. £114. Voted £18 in 12 instalments.—Widow, aged 65, of L.S.A. Lond. who practised in London and died in

1906. Has had a severe nervous breakdown and unable to do any work. Previously was able to earn a little by nursing and needlework. Previous relief four times, £34. Voted £12 in 12 instalments.—Widow, aged 60, of M.D. Irel., who practised for 32 years at Mitcham and died in January, 1914. He was badly injured in the South African War, and lost two sons in the war. Only son, married, who partly supported the applicant, has taken a commission in the army and is now at the front, and his pay is only sufficient to keep his wife. Applicant has tried to obtain mental nursing but has not been successful. Hopes to obtain an annuity of £30 soon. Previous relief once, £18. Voted £18 in three instalments and a special grant of £10 from the War Emergency Fund.—Daughter, aged 66, of M.R.C.S. Eng. who practised at Torrington. She is unable to obtain suitable employment owing to age. No income beyond an occasional gift from friends. Relieved twice, £14. Voted £12 in 12 instalments.—Daughter, aged 48, of M.R.C.S. Eng. who practised in London. Only income £19 per annum, but has lived for many years with a friend who helped her, but is now dead. Health not good and unable to work. Previous help, £13. Voted £15 in 12 instalments.—M.D., C.M. Edin., aged 54, who practised at Wellington. Unmarried. Met with an accident in 1912, and is suffering from brain and eyesight trouble. Memory entirely gone. Lives with widowed sister whose means are very limited. Previous relief twice, £30. Voted £18 in 12 instalments.—Daughter, aged 65, of M.R.C.S. Eng. who practised at Plymouth. She has lost by the death of a friend £30 per annum. Only income now £11 12s. per annum. Rent paid by friends. Too old to work. Previous relief twice, £24. Voted £12 in 12 instalments.—Widow, aged 66, of M.D. Lond. who practised at Oxtou and died in 1897. Lost all capital in a boarding-house which proved a failure. Has endeavoured to make a living as cook, but health too bad to continue. One daughter unable to help. Relieved four times, £48. Voted £12 in 12 instalments.—Widow, aged 65, of M.R.C.S. Eng. who died in 1903. Has one son and one daughter who can only allow applicant 6s. per month. Daughter gives her her dinner daily. Too old to obtain work. Relieved 11 times, £130. Voted £12 in 12 instalments.—Widow, aged 39, of M.D. Glasg. who practised in London and died in 1910. Was left quite unprovided for at husband's death. Eyesight defective. In the summer has acted as lavatory attendant at a seaside resort, but cannot find work in the winter. Relieved once, £10, in 1910. Voted £10 in two instalments and referred to the Guild.—Daughter, aged 38, of M.R.C.S. Eng. who practised at Scarborough. Earns a little by making and selling marmalade and keeping poultry, but is so very uncertain. Relieved ten times, £97. Voted £10 in two instalments.—Daughter, aged 64, of M.R.C.S. Eng. who practised in London. Has an annuity from another charity and a friend allows her £13 per annum; total income £38. Too old to work. Relieved twice, £24. Voted £6 in 12 instalments.—Daughter, aged 53, of F.R.C.S. who practised at Bedford. She acts as a domestic servant for a small salary for the sake of the home, and no other source of income. Previous relief nine times, £64. Voted £12 in four instalments.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos-street, Cavendish-square, London, W.

LITERARY INTELLIGENCE.—Messrs. John Bale, Sons, and Danielsson, Limited, of Oxford House, 83-91, Great Titchfield-street, London, W., announce a work on "Defective Children," edited by Dr. T. N. Kelynnack, and consisting of a collection of 27 studies of the chief forms of defectiveness in children. The book, dedicated to Sir George Newman, is published at 7s. 6d. net.

ROYAL WEST OF ENGLAND SANATORIUM.—The annual meeting of subscribers to the Royal West of England Sanatorium, Weston-super-Mare, was held on Feb. 20th. The financial statement showed that during 1914 the income was £4869, the expenditure being £4733. The medical report stated that during the year 2460 patients have been admitted. At the commencement of the war 150 beds were placed at the disposal of the Admiralty and War Office, and up to the end of last year 500 convalescent wounded soldiers, including Belgians, had been admitted. During 1913 about 10,000 warm sea baths had been given under trained supervision and had been very beneficial in rheumatism, sciatica, &c.

MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.—The Education Committee of the London County Council has approved the renewal for the year beginning April 1st, 1915, of the arrangements made with the governing bodies of various hospitals and the committees of local treatment centres and nursing associations for the medical and dental treatment of elementary school children, subject to variations in points of detail in some of the agreements. Last year provision was made for the treatment of 106,676 cases at 46 centres; this year 125,486 cases are to be treated at 53 centres. The Children's Care Subcommittee reported that during the past year the attendance of children at the various centres had been good. From time to time additional sessions had been authorised to overcome temporary congestion. This plan had been found preferable to increasing the permanent provision for treatment, and it would be followed in the future. No material alteration was proposed in the provision for the treatment of eye, ear,

nose, and throat ailments and ringworm, but six additional dental centres were proposed, making the number 35, giving accommodation for treatment at the rate of 63,140 cases a year, as compared with a rate of 48,180 a year in the last 12 months. The total cost of the proposals was estimated at £37,500, apart from administrative charges.

THE BATTERSEA MEDICAL OFFICERSHIP.—Mr. G. Q. Lennane, medical officer of health for Battersea, having been granted a commission as lieutenant, in the 2nd London Sanitary Company, R.A.M.C. (T.F.), the health committee of his borough council have considered the matter of appointing a locum-tenent. The committee reported to the council on Feb. 24th as follows:—

We have been in communication with Dr. J. Priestley, the medical officer of health of Lambeth, and he has readily expressed his willingness to act in the absence of Dr. Lennane. Dr. Priestley has left the question of remuneration until Dr. Lennane returns to the service of the council. We recommend that, subject to the approval of the Local Government Board, Dr. Priestley be appointed medical officer of health for the borough during the absence of Dr. Lennane.

The finance committee concurred in this recommendation, but when the matter was reached the chairman of the finance committee read a letter in which the Local Government Board stated that "they have some doubt whether Dr. Priestley would be able to discharge satisfactorily the duties of medical officer in two such large boroughs without assistance" and inquired whether it would not be possible to get a properly qualified local man to act as a substitute and to arrange for Dr. Priestley to afford him advice and consult him when necessary. The chairman of the committee said there ought to be no difficulty in complying with the suggestion of the Local Government Board. The recommendation was therefore withdrawn.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—At the annual meeting of governors and subscribers to this hospital it was stated that during the past year 1787 patients had been admitted into the hospital, and 2068 had been attended in their own homes. A special feature of the work had been the treatment of the wives of our soldiers and sailors. From the outbreak of war until the end of 1914 no fewer than 160 wives of soldiers and sailors had been granted admission without the usual subscriber's letter and free of charge. Similarly 218 others had been attended in their own homes. In addition a number of Belgian refugee women had been admitted. Great difficulty had been experienced in obtaining funds for maintenance, and there was a deficiency of £1497 at the end of the year. No legacies had been received. The chairman, in moving the adoption of the report, referred to the scheme of enlargement, including out-patient department, new dining rooms, lecture room, home for district midwives and nurses, &c., which it was hoped to have been able to commence some months ago. War broke out, however, just as the committee were on the point of making a contract and it was decided to postpone the matter.

BRITISH DENTAL ASSOCIATION.—It has been decided by the representative board to hold only a business annual meeting in London this year on July 24th. An invitation had been accepted from the Wessex branch to meet at Bournemouth, under the presidency of Mr. A. E. Ball. Owing to the fact that Mr. Ball is serving as Captain in the 11th Battalion Hampshire Regiment the Bournemouth meeting has been abandoned. The board, having to choose a new president-elect, vice Mr. Ball, has unanimously appointed Mr. W. H. Dolamore, dean of the Royal Dental Hospital, who has already rendered notable service as honorary treasurer and honorary secretary of the association.

ROYAL SANITARY INSTITUTE.—At the next meeting of this institute, to be held on Tuesday, March 9th, at 90, Buckingham Palace-road, S.W., a discussion on Maternity and Child Welfare Schemes will be opened by Dr. E. W. Hope, medical officer of health of Liverpool. The chair will be taken at 7.30 P.M. by Dr. Arthur Newsholme, C.B., and the following, among others, are expected to take part in the discussion: Dr. Eric Pritchard, Dr. Eardley Holland, Dr. J. S. Fairbairn, Dr. Letitia Bernard, Dr. Annie McCall, and Dr. L. C. Parkes.

Mr. W. Pearce, 22 years of age, who was buried at St. Austell (Cornwall) on Feb. 15th, was stated to be the smallest man in England, his height being 3 ft. 6 in.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Mary Heathfield Walls, of Daleham-gardens, Hampstead, the testatrix left £5000 to the Hampstead Home Hospital, £2000 to the London Society for Teaching the Blind to Read, and £1000 to her medical attendant.

DEATH OF MR. J. WYBRANTS OLPHERTS, DOWNPATRICK.—Deep regret has been felt in the North of Ireland at the death of Mr. J. W. Olpherts, of Downpatrick, one of its most respected practitioners. He qualified as L.R.C.P. & S. Edin. in 1869, and for many years enjoyed a large practice in Downpatrick. He was a dispensary medical officer for over 30 years, and discharged the duties with skill and kindness. For many years he was a member of the council of the Irish Medical Association, and recently he was a member of the Irish Medical Committee, in which capacity he proved a valuable colleague.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held at St. John's Hospital on Feb. 16th, Dr. W. K. Sibley being in the chair.—A series of cases were shown by Dr. Morgan Dockrell, Dr. J. L. Bunch, Dr. Sibley, Mr. E. G. Reeve, and Dr. S. Gooding.—Dr. Sibley read a paper entitled "The Treatment of Diseases of the Skin and Mucous Membranes with Carbon Dioxide Snow."

Mr. Francis Martin Russell, M.R.C.S. Eng., one of the oldest medical men in the West of England, died at 13, West Mall, Clifton, Bristol, on Feb. 24th, in his ninety-sixth year. The deceased was for many years in practice at Cwmavon, Glamorganshire.

At Berwick-on-Tweed the schools have been closed until after Easter in consequence of an epidemic of measles.

A CENTENARIAN.—There has recently died in Huntingdon workhouse, at the age of 104 years, a woman named Rhoda Payne. She was a native of Spaldwich, Hunts.

Mr. Henry Stinton Lowe, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Sheriff for Anglesea.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Anti-inoculation Agitation.

THE agitation against the inoculation of the troops against typhoid has very few supporters in the House of Commons. Occasionally questions showing this bias appear on the notice paper. It is, however, the evident wish of large numbers of Members that those should be discouraged. A question on Wednesday suggesting that an investigation should be instituted into the possible connexion between inoculation against typhoid fever and meningitis and cerebro-spinal meningitis gave Mr. T. M. HEALY the opportunity to utter a brief protest. It was evident from the cheers that he had strong support in this attitude. The responsibility for passing questions before they appear on the notice paper does not rest with any Member of the Government, but with the authorities of the House.

Naval Medical Compassionate Fund Bill.

The Naval Medical Compassionate Fund Bill has been passed through all its stages in the House of Commons and been sent to the House of Lords.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 24TH.

Hitchin German Convalescent Hospital.

Mr. JOYNSON-HICKS asked the Secretary of State for the Home Department whether he had received a memorial from the chairman of the Hitchin bench of magistrates in regard to the German convalescent hospital there; whether the entire indoor staff consisted of alien enemies; whether he was aware that the hospital was situate on high ground commanding the town of Hitchin and, in particular, the Great Northern station of that town; and, seeing that anxiety was felt in the district regarding these alien enemies, would he say what steps he proposed to take.—Mr. McKENNA replied: I received a few days ago the memorial mentioned in the first sentence of the question, and it contains the statements referred to. I am inquiring into the matter.

Naval Medical Compassionate Fund Bill.

In moving the second reading of the Naval Medical Compassionate Fund Bill,

Mr. G. LAMBERT (Civil Lord of the Admiralty) said that it was a purely departmental measure dealing with a sum of £10,600, the nucleus of a fund established in 1817. Owing to various alterations in particular arrangements of the naval medical officers that fund was now in an almost moribund condition. The Bill contained provisions giving power by Order in Council to reorganise the fund and to create a number of new trustees who would probably be three—the permanent Secretary of the Admiralty, the Medical Director-General, and probably the Director of Greenwich Hospital. The object was to constitute those gentlemen trustees to enable them to consult the medical officers concerned in reference to this fund, so that the nucleus, now consisting of £10,600, might be put to better advantage and distributed amongst the dependents of naval medical officers who were killed in this war. The fund was established in 1817 with a compulsory contribution made by medical officers to supplement the pensions granted to widows, which at that time amounted only to £40 a year. Things went on until 1861, when Parliament wound up the compulsory portion of the fund, but left the voluntary part of it to be applied as a compassionate fund to the dependents of medical officers who should choose to contribute to the fund. Those medical officers had not contributed to it. There was now a sum of £10,600 available, which it was thought might be usefully employed in giving benefit to the dependents of medical officers who had been killed in the war.

The Bill was read a second time.

THURSDAY, FEB. 25TH.

Zymotic Diseases amongst the Troops.

Sir EDWARD COATES asked the Under Secretary for War whether all cases coming within the category of zymotic diseases notifiable under statute to the local sanitary authority and which occurred among the troops now undergoing training in the United Kingdom were so notified; whether such cases were removed for treatment to the isolation hospitals of the local authority in whose district they arose or were treated in camp hospital; and, in case the latter course was pursued, what steps were taken to ensure complete and efficient isolation.—Mr. TENNANT answered: Yes, Sir. A system of intercommunication exists between the civil medical officers of health and the military sanitary officers. All infectious cases are treated in local civil isolation hospitals except in a few cases where local civil accommodation is not available. Such cases are treated in special military isolation hospitals. Arrangements have also been made for the erection of pavilions in the grounds of civil isolation hospitals where existing accommodation is insufficient.

Cerebro-spinal Meningitis.

Sir EDWARD COATES asked the Under Secretary for War whether his attention had been called to the cases of cerebro-spinal meningitis among the troops in camp at Reed Hall Camp, Colchester: whether he was aware that men who had been in contact with others who had developed the disease were detained under observation in huts which closely adjoined and were part of a block in which a large number of the troops were housed; and whether he would give directions for these cases to be removed to suitable quarters properly isolated until the full period of quarantine had expired.—Mr. TENNANT said in reply: I am making inquiries into the subject of the honourable Member's question, and will in due course let him know the result.

Sir PHILIP MAGNUS asked the Secretary to the Admiralty whether similar medical arrangements to those in force at the Crystal Palace with respect to invalids suffering from cerebro-spinal fever were or would be made in the case of invalids similarly affected in the Royal Naval Hospital, Chatham.—Mr. MACNAMARA wrote in reply: The Crystal Palace and the Royal Naval Hospital, Chatham, are not comparable establishments. The former is a training establishment for sound men, the latter a hospital where sick men are treated. Consequently patients suffering from cerebro-spinal meningitis and contacts with such cases are at once removed from the first, whereas patients and contacts are received into the latter. Naturally every possible precaution is taken at the Royal Naval Hospital, Chatham, to prevent the disease spreading to any other patient. They are, of course, treated in the infectious, not the general, hospital.

A Case of Small-pox in the Army.

Mr. W. THORNE asked the Under Secretary for War whether he would state the condition as regarded vaccination and revaccination of the British soldiers who suffered from small-pox in the United Kingdom between August 1st, 1914, and Jan. 31st, 1915.—Mr. TENNANT answered: The history of the solitary case of small-pox which has occurred

between the dates mentioned in the question is as follows: The soldier referred to, who was vaccinated in infancy, enlisted on August 10th last, went into hospital on August 13th, and was removed to an infectious hospital on the following day. Had he not been taken ill so quickly after enlistment he would have been revaccinated.

Antityphoid Inoculation.

Mr. W. THORNE asked the Under Secretary for War whether he would state the condition as regarded inoculation of the 625 cases of and 49 deaths from typhoid fever amongst the Expeditionary Force from the beginning of August, 1914, to Feb. 11th, 1915, and of the 262 cases of and 47 deaths from typhoid fever amongst the British troops in the United Kingdom from August 1st, 1914, to Jan. 31st, 1915.—Mr. TENNANT replied: I am arranging to have the information asked for by my honourable friend compiled, but it may well take some time to prepare. I shall let my honourable friend know the result as soon as it is ready.

MONDAY, MARCH 1ST.

Consultant Surgeons and Physicians with the Expeditionary Force.

Mr. LYNCH asked the Under Secretary for War whether he could give the names of British consultant surgeons and physicians engaged in medical work with the Expeditionary Force in France or in Belgium, indicating those whose services had been accepted on account of the present war, but who would not otherwise have been called upon in the way of routine service with the army; whether there was a regular scale of payment of these consultants; and, if so, what was the rate.—Mr. TENNANT wrote in reply: The following is a list of the British consultant physicians and surgeons employed in France and Belgium: Sir G. H. Makins, K.C.B., F.R.C.S., Sir A. A. Bowlby, Knt., C.M.G., F.R.C.S., Sir W. P. Herringham, Knt., M.D., Sir A. E. Wright, Knt., M.D., F.R.C.S., F.R.S., Mr. F. F. Burghard, M.D., F.R.C.S., Sir J. Rose Bradford, K.C.M.G., M.D., F.R.S., Mr. W. T. Lister, M.B., F.R.C.S., Sir B. E. Dawson, K.C.V.O., M.D., Sir B. G. A. Moynihan, Knt., M.B., F.R.C.S., and Mr. H. M. W. Gray, M.B., F.R.C.S. Edin. With the exception of Sir A. E. Wright and Mr. Lister these gentlemen are officers of the Territorial Force, and were commissioned before the war. They now hold the temporary rank of Colonel in the Army Medical Service and receive the pay of that rank. They were all appointed consultants on account of the present war, and their services in that capacity have been most useful.

Antityphoid Inoculation.

Mr. BENTHAM asked the Under Secretary for War whether a record was kept of the condition as regarded inoculation of every soldier; if not, how were the statistics compiled showing the condition as regarded inoculation of men who contracted typhoid fever; and if such record was kept, why was not information concerning the condition of soldiers as regarded inoculation available when they developed diseases which were certified as other than typhoid fever.—Mr. TENNANT furnished the following written answer: Instructions have been given for these records to be kept, but as the compilation of these statistics would entail a considerable amount of labour, I regret that in the present pressure of work I do not feel justified in placing this additional strain upon the medical officers of my department.

Replying to a series of questions put by Mr. CHANCELLOR, Mr. TENNANT said that the average death-rate from typhoid per 1000 strength amongst British troops in India for certain years was as follows:—

1895 ... 5.61 per 1000 strength.	1899 ... 5.14 per 1000 strength.
1896 ... 6.31	1900 ... 4.77
1897 ... 8.62	1903 ... 4.19
1898 ... 10.04	

The earliest known inoculation against typhoid in the British army in India was in 1898. This was an initial attempt which was discontinued after the South African War, and it was reintroduced in 1905. With regard to the 262 cases of typhoid among the troops in the United Kingdom from August 1st, 1914, to Jan. 31st, 1915, 25 were inoculated and 237 uninoculated. Of the 47 deaths 2 were inoculated and 45 uninoculated.

Cholera Vaccine Treatment.

Answering Mr. ROWLANDS, Mr. TENNANT stated that nothing was known at the War Office of inoculation against typhus, but as regarded cholera vaccine treatment was regularly carried out in India in face of epidemics, and in the event of an outbreak of cholera the War Office had ample supplies of the vaccine ready for immediate use.

Hospital Accommodation for Contagious Disease.

Sir CUTHBERT QUILTER asked the Under Secretary for War whether it was proposed to take over the workhouse institution at Kedington, near Haverhill, as a hospital for soldiers suffering from a contagious disease; whether he was aware of the objection to this course taken by the guardians of the Risbridge union; and whether, in the circumstances, he

would arrange for other accommodation to be obtained.—Mr. TENNANT answered: It was proposed to take over this institution as a hospital, but as the local authorities objected other accommodation has been arranged.

Pay of the Royal Army Medical Corps.

Sir JOHN LONSDALE asked the Financial Secretary to the War Office why officers of the Royal Army Medical Corps drew their pay one month in arrear, whereas other officers in the army drew their pay one month in advance by regulation; and whether the practice throughout the army would be made uniform in this respect.—Mr. H. BAKER replied: Officers of the Royal Army Medical Corps are not peculiar in this respect. They are paid in arrear in common with all staff and departmental officers. Only regimental officers draw in advance. This is in accordance with a long-standing custom which it is not proposed to disturb.

An Outbreak of Meningitis.

Mr. JOYNSON-HICKS asked the Secretary to the Admiralty how many of the 14 medical men attached to the Royal Naval Division at the Crystal Palace had, since the outbreak of meningitis, been drafted, with the battalions to which they were attached, to Blandford; how many more would shortly be drafted; and how many would be left at the Crystal Palace.—Mr. MACNAMARA replied: Nine of the medical officers attached to the Royal Naval Division at the Crystal Palace have been drafted with their battalions. Two have been sent in lieu, thus leaving seven medical officers for about 5000 men. It is not contemplated that any more should be drafted at present.

Mr. JOYNSON-HICKS further asked whether the bacteriologist who had been specially appointed to inquire into the causes of the outbreak of meningitis was not specially appointed at all but was one of the ordinary doctors attached to the Naval Division; and whether he had since been drafted to Blandford.—Mr. MACNAMARA answered: The bacteriologist specially appointed to inquire into the outbreak is not one of the ordinary doctors attached to the Naval Division, nor has he been in any way connected with the Division, but is the professor of clinical pathology at the Naval Medical School at Greenwich. Naturally he has not been drafted to Blandford.

Mr. JOYNSON-HICKS also asked whether two officers of the Royal Naval Division died from meningitis last week at their own homes; whether any further cases had occurred; and how many men were still at the Crystal Palace.—Mr. MACNAMARA said in reply: One case, not two, of cerebro-spinal meningitis from the Royal Naval Division at the Crystal Palace has died at his own home. Up to to-day there had been 18 cases in all with 13 deaths. There are about 5000 men still at the Crystal Palace.

Temporary Surgeons in the Royal Navy.

Lord CHARLES BERESFORD asked the Secretary to the Admiralty whether he could now make a statement with regard to the position of temporary surgeons in the Royal Navy.—Mr. MACNAMARA answered: The question has been carefully considered, but it has not been found possible to arrive at a satisfactory solution of the difficulty referred to by the noble lord in his question of Feb. 18th.

The Prevention of Insanity.

Mr. W. THORNE asked the President of the Local Government Board whether the Report on the Prevention of Insanity had been published in accordance with his promise that he made to a deputation which waited upon him on Thursday, July 16th, 1914; whether he was aware that over 300 Members of the House of Commons and about 236 of the medical profession signed a petition against the principles contained in Part V. of the London County Council (General Powers) Bill; and whether the Government intended taking any action in the matter.—Mr. HERBERT SAMUEL said in reply: The outbreak of the war prevented any action being taken at the time. I have lately given fresh consideration to the question, but have come to the conclusion that an expert inquiry must precede any definite action. I propose to appoint a committee for this purpose when circumstances permit.

TUESDAY, MARCH 2ND.

Communications from Wounded in France.

Answering Lord ROBERT CECIL, Mr. TENNANT said: Official postcards are supplied so that the sick and wounded in the hospitals in France may inform their relatives that they have been admitted. At present the postcard is only allowed to contain a statement of the official number of the hospital and not of the place where it is situated. The military authorities in France have, however, been asked to reconsider the form of the card with a view to the inclusion of the name of the hospital.

Repatriation of Medical Men.

Replying to Lord ROBERT CECIL, Sir EDWARD GREY (Secretary of State for Foreign Affairs) said: Civilian doctors and civilians not of military age—that is, under 17 and over 55 years of age in the case of Germany, and under 18 and

over 55 years of age in the case of Austria—are entitled to repatriation under the agreements concluded between His Majesty's Government and the German and Austro-Hungarian Governments. So far as our information goes, these agreements have been observed by the Governments concerned, but in a certain number of cases in which proof of age or confirmation of a claim to be a member of the medical profession was not immediately forthcoming special representations have been made by the Government concerned.

WEDNESDAY, MARCH 3RD.

Inoculation.

Mr. YEO asked the Under Secretary for War whether, in view of the prevalence of meningitis and cerebro-spinal meningitis and of the percentage of deaths that had resulted therefrom amongst British troops in the United Kingdom since the outbreak of war, he would recommend that a careful investigation be instituted into the possible connexion between inoculation against typhoid fever and the diseases first mentioned.—Mr. TENNANT replied: Experts, both military and civilian, have been consulted on this point. They are of opinion that there is no connexion between inoculation and cerebro-spinal meningitis, and in the circumstances it is not considered desirable to institute any special investigation.

Mr. T. M. HEALY: As this is not the first time that the paper has contained questions of this sort, and as nearly everybody knows this suggestion is false, will the right honourable gentleman do something to discourage the putting down of these questions?

HON. MEMBERS: Hear, hear.

Mr. TENNANT: I sympathise very much with the honourable and learned gentleman. It is, however, a matter for the authorities of the House and not for me to decide what questions should be put down.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

AYSHFORD, GILES REYNOLDS, M.B., C.M. Edin., has been appointed Medical Officer and Public Vaccinator for the Dalwood and Stockland Districts by the Axminster (Devon) Board of Guardians.
BRYAN, CHARLES H., L.R.C.P. & S. Irel., has been appointed Medical Officer for Kiltegan District Dispensary by the Baltinglass Board of Guardians.
CLERY, J. N., L.R.C.S. Irel., L.R.C.P. Edin., has been temporarily appointed Medical Officer of the Kilmallock Union.
DESMOND, M. P., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Macroom Board of Guardians.
JOHNSTONE, W. M. L., M.B., M.Ch. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Newent District of the county of Gloucester.
LINDSAY, E. A., M.R.C.S., L.R.C.P. Lond., has been appointed Surgical Pathological Registrar in the Bland-Sutton Institute of Pathology, Middlesex Hospital.
LUKE, GEORGE F., M.B., M.S. R.U.I., has been appointed Dispensary Medical Officer at Pomeroy, Co. Tyrone, by the Cookstown Guardians.
MURRAY, J. J., has been appointed Medical Officer of Downpatrick Dispensary District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with residence, board, &c.
BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.
BARROW-IN-FURNESS WORKHOUSE, COTTAGE HOMES, AND DISTRICT.—Medical Officer. Salary £450 per annum.
BENEDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer. Salary £120 per annum, with board, residence, and laundry.
BEXLEY, KENT, LONDON COUNTY ASYLUM.—Locum Tenens Medical Officer. Salary 6 guineas a week, with quarters, board, and washing.
BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant for three months. Salary at rate of 52 guineas per annum.
BIRMINGHAM CITY MENTAL HOSPITAL, Rubery-hill.—Female Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, laundry, &c.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer unmarried. Salary £240 per annum, with apartments, fire, lights, and attendance.

BOLTON UNION.—Resident Assistant Medical Officer for Townleys Hospitals at Farnworth, near Bolton. Salary £250 per annum, with apartments, washing, and attendance.
BOOTLE BOROUGH HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with residence, board, and laundry.
BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £100 per annum, with board, lodging, washing, &c.
BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £125 per annum, with board, lodging, and washing.
BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.
CARMARTHEN, JOINT COUNTIES ASYLUM.—Temporary Second Assistant Medical Officer. Salary at rate of £200 per annum, with board, lodging, washing, &c.
CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.—Resident House Surgeon. Salary £50 per annum, with board and residence.
CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.
COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEBLE-MINDED.—Female Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.
CROYDON GENERAL HOSPITAL.—Honorary Radiographer.
DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Salary £120 per annum.
DUNDEE ROYAL INFIRMARY.—Resident Medical Officers. Salary £60 per annum.
ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, residence, and laundry.
ESSEX EDUCATION COMMITTEE.—Temporary Female School Medical Inspector. Salary £300 per annum.
GLASGOW ROYAL ASYLUM.—Senior Assistant Physician, unmarried. Salary £300 per annum, with board, apartments, and laundry.
GLASGOW, GOVAN DISTRICT ASYLUM, Hawkhead, Cardonald.—Senior Assistant Medical Officer. Salary £250 per annum, with board, apartments, and laundry.
GREENWICH UNION INFIRMARY AND WORKHOUSE.—First Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, rations, and washing.
HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
HEREFORD COUNTY AND CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £225 per annum, and all found except stimulants.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Physician.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board, residence, &c.
HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.
HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.
ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £80 per annum, with board and residence.
KINGSTON-ON-THAMES INFIRMARY.—Two Resident Assistant Medical Officers. Salary £300 per annum, with board, residence, laundry, &c.
LIVERPOOL ROYAL INFIRMARY.—Three House Physicians, Three House Surgeons, One House Surgeon to Gynaecological Department, and One House Surgeon to other Special Departments. All for six months. Salary at rate of £60 each per annum.
LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Surgeons and One House Physician, each for six months. Salary at rate of £60 per annum, with board and residence.
LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer. Salary £250 per annum, with residence and board.
LONDON HOMOEOPATHIC HOSPITAL, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Surgeon for Diseases of the Eye.
MACCLESFIELD, CHESHIRE COUNTY ASYLUM, Parkside.—Junior Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.
MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department, for six months. Salary £100 per annum.
MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
MANCHESTER, MONSIEUR FEVER HOSPITAL.—Second and Third Medical Assistants. Salary £175 and £150 per annum respectively, with board, lodgings, and washing.
MELTON, SUFFOLK DISTRICT ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and laundry.

MERTHYR TYDFIL COUNTY BOROUGH.—Assistant School Medical Officer. Salary £300 per annum.

METROPOLITAN BOROUGH OF HACKNEY AND STOKE NEWINGTON.—Tuberculosis Officer. Salary at rate of £500 per annum.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon. Salary £150 per annum, with board, lodging, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Physician to the Skin Department.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROUSAY AND EGILSHAY, PARISH OF.—Resident Medical Officer. Salary £1 per annum, with free house (partly furnished) and garden.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.

SERBIAN RELIEF FUND.—Two Medical Women for Mrs. St. Clair Stobart's Unit. Salary at rate of £200 per annum, with maintenance and expenses.

SHEFFIELD ROYAL HOSPITAL.—Female Assistant House Surgeon and Female Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHOREDITCH INFIRMARY, Hoxton-street, N.—Senior Assistant Medical Officer. Salary £280 per annum, with board, apartments, and washing.

SHERWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.

SOUTH AFRICA, FRERE HOSPITAL, East London.—Resident Medical Officer, unmarried. Salary £300 per annum, with board, lodging, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTON DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £180 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Physician and House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and washing.

TAUNTON.—Medical Officer of Health for Urban District of Wellington, Somerset; Medical Officer of Health for Rural District of Taunton; Medical Attendant, Isolation Hospital, Taunton; and Poor-law Medical Officer and Public Vaccinator for Taunton St. James District. Salary for combined appointment £450 per annum, with expenses, &c.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £150 per annum, with rooms, board, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon for six months. Salary £40 each, with board and lodging.

WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.

WANDSWORTH UNION INFIRMARY, St. John's-hill, Clapham Junction, S.W.—Assistant Medical Officer, unmarried. Salary at rate of £5 5s. weekly, with board, lodging, and washing.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary at rate of £200 per annum, with board, apartments, and laundry.

WEI-HAI-WEI COLONY.—Medical Officer. Salary £300 per annum, with free unfurnished quarters, &c.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.

WEST HAM UNION INFIRMARY, Whipps Cross-road, Leytonstone, N.E.—Second Assistant Resident Medical Officer. Salary £250 per annum, with usual residential allowances.

WEST RIDING OF THE COUNTY OF YORK, SCALEBOR PARK ASYLUM, Burley-in-Wharfedale.—Assistant Medical Officer. Salary £250 per annum, with rooms, board, attendance, and washing. Or Locum Tenens. Salary £5 5s. per week.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £150 per annum, with board, lodging, and attendance.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Female Junior House Surgeon. Salary £130 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £125 per annum, with board, rooms, and laundry.

WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, W.—Assistant Physician and Assistant Surgeon. Also Anaesthetist. Salary £10, with possible emoluments of £75.

YORK DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Saintfield, in the county of Down; at Turriff, in the county of Aberdeen; and at Ruddington, in the county of Nottingham.

Births, Marriages, and Deaths.

BIRTHS.

STEPHEN.—On Feb. 26th, at Bassingbourn, Royston, Herts, the wife of Leslie D. Stephen, M.B. Ch.B., of a son.

THOMAS.—On Feb. 21st, at Carlton-hill, Exmouth, the wife of R. Stanley Thomas, M.D., of a son.

MARRIAGES.

KELLETT-SMITH—HUBIN.—On Feb. 18th, at All Soul's, Langham-place, W., by the Rev. Prebendary F. S. Webster, M.A., J. S. Kellett-Smith, F.R.C.S. Eng., of Cavendish-place, W., and of Eastbourne, to Marie Jacqueline, daughter of the late Eugène Hubin, of Liège, Belgium.

WALLIS—O GRADY.—On Feb. 23rd, at Holy Trinity Church, Folkestone, Staff-Surgeon James Garrit Wallis, M.B. R.N., to Eileen Mary, eldest daughter of Inspector-General Standish T. O'Grady, R.N. (retired).

DEATHS.

MONK.—On Feb. 20th, at Southampton, Katharine Henrietta Monk, late Sister-Matron, King's College Hospital, London.

WALKER.—On Sunday, Feb. 28th, at 33, Westgate, Peterborough, in her 71st year, Mary Elizabeth, since May 9th, 1865, the dearly beloved wife of Thomas James Walker, M.D., F.R.C.S. Funeral service St. John's Church, 12 noon, Thursday. Interred in Peterborough Cemetery.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, LIMITED, London.
Know Thyself. By Bernardino Varisco. Translated by Guglielmo Salvadori, Ph.D. Price 10s. 6d. net.

AMERICAN LARYNGOLOGICAL ASSOCIATION, New York.
Transactions of the Thirty-sixth Annual Meeting of the American Laryngological Association held at Atlantic City, N.J., May, 1914.

BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.
An Index of First Aid. By J. M. Carvell, M.R.C.S., L.S.A. Lond. Price 1s. net.

BLACK, A. AND C., London.
Medical Applied Anatomy: For Students and Practitioners. By T. B. Johnston, M.B., Ch.B., Lecturer on Anatomy, University College, London. Price 7s. 6d. net.

BRITISH DRUG HOUSES, LIMITED, London.
The B.D.H. Guide to the British Pharmacopœia, 1914. Price 1s. net.

CHURCHILL, J. AND A., London.
Materia Medica, Pharmacy, Pharmacology, and Therapeutics. By W. Hale White, M.D. Lond., M.D. Dub. (Hon.). Fourteenth edition. Price 6s. 6d.

Difficulties and Emergencies in Obstetric Practice. By Comyns Berkeley, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., and Victor Bonney, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond. Second edition. Price 2s. net.

Diseases of the Skin. By James H. Sequeira, M.D., F.R.C.P. Lond., F.R.C.S. Eng. Second edition. Price 25s. net.

CORBYN, STACEY, AND CO., LIMITED, London.
A Conspectus of the Principal Changes in the British Pharmacopœia, 1914. By J. H. Williams, F.C.S. Price 1s.

LAURIE, T. WERNER, London.
How to Win at Royal Auction Bridge. By "Cut Cavendish." Price 2s. 6d. net.

Dew Ponds: History, Observation, and Experiment. By Edward A. Martin, F.G.S. Price 6s. net.

LEWIS, H. K., London.
Extra Pharmacopœia. By W. H. Martindale and W. Wynn Westcott. Sixteenth edition. Two vols. Price 21s. net.

PUTNAM'S, G. P., SONS, New York and London.
Practical Nursing: A Text-book for Nurses. By Anna Caroline Maxwell and Amy Elizabeth Pope. Third edition, revised and enlarged. Price 7s. 6d. net.

ST. JOHN AMBULANCE ASSOCIATION, Simla.
Indian Home Nursing. By Major R. J. Blackham, C.I.E., V.H.S., B.L., R.A.M.C. Third edition. Price 1 rupee.

SAUNDERS, W. B., COMPANY, London and Philadelphia.
Clinical Diagnosis. By James Campbell Todd, M.D., Professor of Pathology, University of Colorado. New third edition. Price 12s. net.

SHERRATT AND HUGHES, London.
The Alimentary Tract: A Radiographic Study. By Alfred Barclay, M.A., M.D., B.C. Cantab. Price 15s. net.

SMITH, ELDER, AND CO., London.
An Index of Symptoms: With Diagnostic Methods. By Ralph Worthington Leftwich, M.D. Fifth and revised edition. Price 10s. 6d. net.

UNIVERSITY PRESS, Cambridge.
Inorganic Plant Poisons and Stimulants. By Winifred E. Brenchley, D.Sc., F.L.S. Price 5s. net.

UNWIN, T. FISHER, London.
Rural Housing. By William G. Savage, B.Sc., M.D. Lond., D.P.H. Price 7s. 6d. net.

Notes, Short Comments, and Answers to Correspondents.

VERMIN IN THE TRENCHES.

To the Editor of THE LANCET.

SIR,—Since last October I have had to prepare many remedies for the destruction of body parasites, which, owing to the enforced conditions of life in the trenches, have severely infested our soldiers. The drugs used have been the usual ones: sassafras, eucalyptus, aniseed, and various dusting powders which owe their efficacy in most cases to their volatility. The antiparasitic action of mercury has long been recognised, but its method of application not being idealistic, experiments were made to devise a more suitable and cleanly method of exhibition. The following has given such satisfactory results as to warrant its publication:—

R Hydrargyri ammoniati	3 i.
Zinci oxidi	3 ss.
Magnesi silicatis	3 ss.
Fiat pulvis.	

The powder is thoroughly applied to the infested areas on a lint pad or by medium of the pepper-box arrangement suggested by Mr. J. F. Briscoe in THE LANCET of Feb. 20th; being non-greasy the necessity for shaving the infested part is avoided. The mercurial salt being very slowly ionised, and the astringent and dehydrating effect of the oxide of zinc inhibiting absorption, no toxic effects are produced, but an increased localised action is obtained. The French chalk is added to increase the diffusibility of the powder on application, making it closely resemble a toilet powder. The absence of fatty acids is much appreciated by the patients, staining of the clothes being quite avoided.

I have seen the powder applied to suppurating wounds infested with vermin with the result that in two days both parasites and ova have disappeared, and the patients' mental and physical condition have been considerably improved. I have repeatedly tested the saliva and urine of patients undergoing the treatment, and have not been able to find the slightest evidence of the general absorption of the mercury, nor have I seen that painful dermatitis produced, which so often follows the application of a mercurial salt; the zinc oxide probably corrects any tendency it might have to do so. I would urge the value of the powder from a prophylactic standpoint also; dusted on the vests, pants, shirts, or body it is inimical to the development, not only of vermin, but of other organisms to which our virile defenders are exposed.

I am, Sir, yours faithfully,

LANGFORD MOORE.

St. Bartholomew's Hospital, E.C., Feb. 26th, 1915.

"THE HIDEOUS SIN."

IN the *Weekly Dispatch* of Feb. 21st Mr. Robert Blatchford under this title quoted from an article which appeared in the same paper on Feb. 14th, written by Mr. Max Pemberton, in which the latter writer says: "THE LANCET supports the statement that from one particular convent of 60 some 29 are expecting children." We did not "support" the statement or make the statement. It occurred in a public address which was duly reported last December in THE LANCET and other newspapers. Very many terrible things have been done in unhappy Belgium, and we no more contradict the statement quoted by Mr. Max Pemberton than we have supported it; but we are bound to point out that Mr. Max Pemberton made a careless use of our name, and one that has naturally caused us a great deal of inconvenience.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—I should be grateful if any of your readers could inform me of a home or institution where a "Mongolian" child, aged 3, could be placed. The parents are gentlefolk, but with very limited means.

I am, Sir, yours faithfully,

C. WILLETT CUNNINGTON.

Dollis-avenue, Finchley, N., Feb. 27th, 1915.

MEAT FOR THE SOLDIER.

IN THE LANCET of June 16th, 1906, we published an annotation under this heading commenting on the form of tender for contracts to the army and the question of "home-fed" and "foreign-fed" meat to be supplied to the army. The amount of the meat supplied to our soldiers and sailors at that time was said to be something like £2,000,000 worth per annum; what must it be, then, with the present enormously increased army of this country? The question of meat contracts must affect the supply and breeding of cattle not only in this country, but very largely in the colonies and the Argentine. The refrigerating process

comes up for reconsideration *versus* the importation of live cattle to be killed here on arrival, for it is known that long sea journeys by no means improve the beast or its meat. The recent trouble arising from the supply of a small quantity of meat by a firm of contractors in London tends to suggest that attention will have to be given anew to the whole question in view of the tremendously altered circumstances of the army and its supplies.

SUPPLY AND DEMAND.

To the Editor of THE LANCET.

SIR,—One hears that owing to the number of doctors who have gone to help in the war there is a serious dearth of doctors in some towns and country districts. Could you or any of your readers inform me if this is actually the case, and how I could discover places in which the population are suffering from want of medical men? I have practised abroad for some years and am forced to remain in England owing to the war, and should be glad to find a place such as I have described. I am too old for military service and something of an invalid, but am capable of a fair amount of work, and being married desire to establish a home preferably in the West Country, Devon or Cornwall especially.

I am, Sir, yours faithfully,

Feb. 19th, 1915.

DOCTOR OF MEDICINE.

To the Editor of THE LANCET.

SIR,—The question of an alleged shortage of medical men is receiving a good deal of attention in the press; in certain dailies it has assumed the dimensions of a campaign appealing to women to matriculate in medicine and qualify. Suggestions have even been made to reduce the qualifying standards of examinations and to permit of the employment of unqualified assistants with the view to meet the alleged "scarcity of doctors." Could not the present temporary shortage be met by a system of organised distribution applied to the medical civil services? It was stated last week on the authority of Sir Donald MacAlister that there existed a superabundance in some places and a deficiency in others. How could it be otherwise from a consideration of the relative value of appointments open to recently qualified men? House appointments in hospitals and infirmaries and other charitable institutions at a purely nominal remuneration, competing with the County Council services (e.g., tuberculosis, school, and asylum junior medical officers) offering salaries of £250 and £300 with substantial emoluments, and in many instances with less onerous work.

Since last August the great majority of recently qualified men have taken temporary commissions in the forces. In many instances in the asylum and other County Council services junior medical officers have also done so, but in such cases the authorities have almost invariably advertised for a locum-tenent (where the appointment is kept open) at "6 guineas per week all found." This in no way relieves the strain of shortage.

This kind of thing could only result in a waste instead of an economy of medical workers and of money. The smaller hospitals and infirmaries are outbidden, and as a result find it difficult to secure medical officers. Under the great strain of present conditions one would think that, without loss to the community or to the profession, the junior medical officers of asylums and other county medical services could *pro tem.* be spared, their services being utilised where most urgently required. This would provide a good number of men and would help to reduce the dislocation of medical service to a minimum. Many asylums have large medical staffs ranging from six to three assistant medical officers. As to the question of a shortage five or six years hence, to which so much attention has been directed in the daily press, it can at least for the present be left to take care of itself. Of the thousands of recently qualified men holding temporary commissions the majority will return to civil practice or appointments. My card is enclosed.

I am, Sir, yours faithfully,

Feb. 15th, 1915.

L.R.C.P.

* * Our correspondent "L.R.C.P." in his otherwise sensible letter forgets that a shortage in the medical profession five or six years hence can only be averted by an increase of students now.—ED. L.

THE TAI-NAN HOSPITAL, FORMOSA.

IN the medical report of the English Presbyterian Mission Hospital at Tai-Nan, Formosa, 1914, Dr. James L. Maxwell refers especially to an outbreak of typhoid fever. In connexion therewith he expresses the opinion that the bulk of the anomalous attacks of non-malarial continued fever in children are really enteric, that the temperature chart in such cases is no guide, but is apt to lead the observer astray, because where malaria is common a malarial pyrexia is liable to complicate almost any ailment, and even the Widal reaction often fails to give a satisfactory result. The question arises as to the existence of typhus among the Chinese residents of Formosa. Dysentery

is quite common, many cases being bacillary or mixed; in the former emetine proves useless, except, perhaps, for some slight amelioration of symptoms. Rogers' albugin treatment in bacillary cases has proved disappointing in Dr. Maxwell's hands. The surgical work is extraordinarily varied, and the surgeon has to undertake practically every kind of operation. Two cases of severe injury to the cervical spine are reported, as are also cases of vesical calculus and extra-uterine pregnancy. The medical report and particularly the summary of operations, which reach a total of 2201, are very creditable to Dr. Maxwell and his associate, Dr. G. Gushue-Taylor, while the fact extracted from the hospital statistics that the hospital treated 2062 in-patients, while the total expense of the institution was only 10,358 yen, or approximately £1065 a year, is remarkable.

WILLING TO HELP.

To the Editor of THE LANCET.

SIR,—Noticing from time to time letters in THE LANCET asking for medical officers in one unit and another I shall be glad to hear of any suitable position either at home or abroad where it is thought my services and experience can be made use of with the greatest advantage. I am medical officer of health to a metropolitan borough with 20 years' experience in such work, have also some military experience, and can provide, ride, and drive horse and motor car should such be of use. Full particulars can be forwarded.

I am, Sir, yours faithfully,

Feb. 28th, 1915.

WILLING TO HELP.

HEALTH OF BRITISH HONDURAS.

In his report on the Blue-book for 1913 Mr. Robert Walter, Colonial Secretary, states that the year was unusually wet; in fact, the rainfall (126.73 inches) was almost the heaviest for the last ten years, but the public health was good, and no serious epidemic of any kind occurred. Small-pox has not been in the colony since 1909, and there have been no cases of yellow fever since 1905, whilst plague may be said to be unknown. Tuberculosis showed little sign of diminution; it is due principally to overcrowding and neglect of elementary laws of health, and it is hoped that increasing knowledge, with improved housing conditions, will do much towards reducing the scourge. The estimated mean population for the year was 41,170—20,689 males and 20,481 females. The average population of the whole colony to the square mile is 4.83. The most populous district is Belize, with 9.49 to the square mile, and the least populous Toledo, with only 1.97 to the square mile. The birth-rate for the year was 40.151 and the mortality 26.233 per 1000. The number of illegitimate births was 709 out of a total of 1653, or 42.90 per cent. The daily average number of patients under treatment in Belize Hospital was 48.25; in Corozal Hospital, 7.74; in Orange Walk Hospital, 4.20; in Strann Creek Hospital, 4.99; and in Punta Gorda Hospital, 6.4.

CENTIGRADE AND FAHRENHEIT.

To the Editor of THE LANCET.

SIR,—In reference to Quatorze, M.D.'s letter in THE LANCET of Feb. 27th on Centigrade and Fahrenheit scales, I thought we had most of us learned the relations between the two scales, and the fact that one begins at the freezing-point and the other 32° F. lower, and it is a simple thing to work out the correspondence if we sit down with pen, ink, and paper. What the British doctor really wants are ready memoranda of the facts and relations which most nearly concern his daily clinical work and professional reading. Now, 95° Fahrenheit corresponds to 35° Centigrade, and 104° F. to 40° C. The two fives in the first case and the two fours in the second supply the *memoria technica*. From these it is easy to calculate all the intermediate relations, remembering that 1° C. equals 1.8° F. Thus 36° C. equal 96.8° F., 37° C. equal 98.6° F., and so on, and we rarely have to work outside these nine degrees Fahrenheit or five degrees Centigrade. Those with "good heads for figures" can learn them by heart. It will be seen that 37° C. is just above the 98.4° F., which is commonly regarded as the normal temperature; also that from 36° C. to 37° C. covers from 96.8° F. to 98.6° F. an interval which runs only a fifth of a degree Fahrenheit above and below the daily range of temperature in health—namely, from 97° to 98.4°.

I am, Sir, yours faithfully,

March 2nd, 1915.

GRIMPEUR.

MEDICAL REPRESENTATION ON THE BATTERSEA BOROUGH COUNCIL.

It was mentioned at a meeting of the Battersea borough council last week that there is now no medical practitioner among the members of that body. In former times there have been as many as three or four. The council decided to record its regret at the death of Dr. J. T. Richards, who died on Feb. 18th after a very short

illness. One member said that his colleagues had hoped that if an emergency were to arise during the absence of the medical officer they might have the advice and assistance of Dr. Richards, but Providence had ruled it otherwise. Dr. Richards was a member of the council for many years. His quiet, earnest personality and his proved ability made him respected by all his colleagues, though his amused attitude towards many borough council conventions rendered him sometimes a puzzle to the body that set up the brazen image of the "Little Brown Dog."

Cheval.—Allowing for depreciation and for interest on capital, it is doubtful whether our correspondent could run a motor-car on his exceptionally small mileage for less than his present outlay for the hired horse and brougham, even though he has a place in which he could keep the car and would drive himself. But given a mechanical turn of mind, he would find the car much more interesting, and it would enable him to extend his sphere of operations if desirable. For the sum mentioned, a good secondhand small car would be best, but care should be taken as to where and from whom the purchase is made, and our correspondent should not trust his own judgment. A clearance of 6 ft. 6 in. is somewhat close, but should not present difficulty with a small car—and care. Better to "back in," so as to be ready to come out quickly in case of an urgent call, especially in the dark. The car is a "sure scorer" in urgent cases.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. E. Heron-Allen: Contributions to the Study of Bionomics and Reproductive Processes of the Foraminifera (communicated by Prof. W. A. Herdman).—Mr. G. E. Nicholls: On the Occurrence of an Intracranial Ganglion upon the Oculomotor Nerve in Scyllium Canicula, with a Suggestion as to its Bearing upon the Question of the Segmental Value of Certain of the Cranial Nerves (communicated by Prof. A. Dendy).—Prof. R. Kennedy: Experiments on the Restoration of Paralyzed Muscles by Means of Nerve Anastomosis. Part III., Anastomosis of the Brachial Plexus, with a Consideration of the Distribution of its Roots (communicated by Prof. J. G. McKendrick).—Mr. A. F. S. Kent: On the Mechanism of the Cardiac Valves. A Preliminary Communication (communicated by Prof. C. S. Sherrington).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries—Thomas H. Kellock, David Forsyth): at 8 P.M.

Dr. J. Porter Parkinson: Case of Tumour of the Neck with Obstruction of the Superior Vena Cava. And other Cases.

HUNTERIAN SOCIETY.

WEDNESDAY.—4 P.M., Clinical Afternoon at the Royal Hospital for Diseases of the Chest, City-road, E.C. Cases will be shown by Dr. A. T. Davies, Dr. R. M. Leslie, Dr. D. B. King, and Dr. L. Maitland. Cardiograph Demonstrations:—Dr. A. W. Stott. Epidiascope and Fluorescent Screen Demonstrations:—Dr. A. C. Jordan. Pathological Demonstrations:—Dr. C. Dickinson.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—8 P.M., Mr. J. W. Gordon: Patent Law Reform and the War.

SOUTH-WEST LONDON MEDICAL SOCIETY, Bolingbroke Hospital, Wandsworth Common, S.W.

WEDNESDAY.—9 P.M., Mr. M. S. Mayou: Conjunctivitis, its Varieties and Treatment. (Lantern demonstration.)

CHILD STUDY SOCIETY LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—6 P.M., Discussion on the Care and Development of the Child—During School Age. Treatment Centres and their Possibilities, Miss M. McMillan; Care Committees, Mrs. Evelyn.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Harveian Lecture:—Sir St. Clair Thomson: Modern Methods in Rhinology-laryngology (illustrated by lantern slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Hunterian Lecture:—Prof. W. S. Handley: Ileus Duplex (Inflammatory Enterocolic Ileus).

WEDNESDAY.—5 P.M., Hunterian Lecture:—Prof. J. H. Evans: Some Congenital Lesions of the Small Intestine, their Origin, Clinical Bearings, and Treatment. (Illustrated by specimens and the epidiascope.)

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Gynaecological (Dr. J. B. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Rays and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Clinical Demonstration: Mr. H. W. Carson: Selected Surgical Cases.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynaecological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Popular Eruptions.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

FRIDAY.—9 P.M., Sir Rickman J. Godlee: Back to Lister.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.

TUESDAY.—7.30 P.M., Discussion on Maternity and Child Welfare Schemes, opened by Dr. E. W. Hope (Liverpool).

For further particulars of the above Lectures, &c., see Advertisement Pages.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 3rd, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 25	30.35	N.	...	73	45	30	...	31	Overcast
" 26	30.44	S.W.	0.11	79	47	31	34	34	Fine
" 27	29.96	S.W.	0.01	78	48	34	40	40	Raining
" 28	29.81	W.	0.04	81	49	37	38	39	Fine
Mar. 1	29.53	W.	0.02	76	46	37	35	38	Fine
" 2	29.92	W.	0.20	76	47	36	36	37	Fine
" 3	29.84	S.W.	...	57	50	37	45	45	Raining

The following magazines, journals, &c., have been received:—Birmingham Medical Review, Therapeutic Gazette, Journal of the Royal Sanitary Institute, La Clinique Ophtalmologique, Practitioner, British Review, Revue d'Hygiène, St. Thomas's Hospital Gazette, Argentina Médica, Journal of State Medicine, British Journal of Dermatology, Malaria e Malattie dei Paesi Caldi, Calcutta Medical Journal, Interstate Medical Journal, Archives of International Medicine, &c.

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Hunterian Lecture

ON

THE OPERATIVE TREATMENT OF CLEFT PALATE.

Delivered before the Royal College of Surgeons of England on Feb. 17th, 1915.

By H. BLAKEWAY, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR AT THE COLLEGE; SURGICAL REGISTRAR, ST. BARTHOLOMEW'S HOSPITAL; SURGEON, WITH CHARGE OF OUT-PATIENTS, VICTORIA HOSPITAL FOR CHILDREN; ACTING ASSISTANT SURGEON, ROYAL FREE HOSPITAL.

(Concluded from p. 482.)

RESULTS IN 100 CONSECUTIVE CASES TREATED BY LANE'S OPERATION.

THE discussions of the subject during the last 10 years or so have brought forth many appeals for evidence as to the alleged advantages of the flap operation, and it has become urgently desirable that statistics should be produced, and that such figures should supply, not merely the immediate results of the operation, but also the ultimate results as seen at intervals of several years after its performance. I desire especially to acknowledge my indebtedness to Sir Arbuthnot Lane and to the authorities at Great Ormond-street Hospital, through whose kindness I have been enabled to investigate 100 consecutive cases treated by this method. (Table III.)

These patients were operated upon between April, 1905, and January, 1907. They have been traced, and, if possible, seen at intervals after the operation varying between approximately 5 and 9½ years. After such intervals conclusions may justly be drawn as to the effect of the operation upon the speech as well as upon the healing of the palate.

The cases may be summarised as follows: Males, 48; females, 52. Of these 100 cases 87 have been traced, and of these 40 have been seen; 1 of these has since died. Of the remaining 47 cases, 33 are dead, and in 14 the result of the treatment was ascertained by correspondence.

The ages of the patients at the time of the first operation varied from 1 day to 11 years, but 79 of the children were under the age of 1 year.

The cases showed the following degrees of severity:—

Complete cleft of hard and soft palates	35 cases.
Cleft of soft and part of hard palate	45 "
Cleft of soft palate only	11 "
Congenital central cleft of palate	1 case.

In the remaining 8 cases the extent of the cleft was not stated in the notes and could not afterwards be determined.

Mortality of the Operation.

Of the children 33 died. It is impossible always to write with certainty as to the cause. While some of the deaths were certainly due to the operation, and others as certainly not, there remain cases in which differences of opinion might arise as to the part which the operation played in producing the fatal result. Since cases were not excluded on account of malnutrition, of necessity some deaths are recorded as due to the operation which would almost certainly have occurred even if no operation had been performed. Allusion has already been made to the importance of this factor of difference in the results obtained at different hospitals and by different surgeons.

Of the 33 deaths 19* are judged to have been due

* Cases 9, 19, 26, 33, 35, 43, 46, 50, 52, 58, 60, 78, 83, 90, 91, 94, 97, 98, and 100.

to the operation; 13 of these resulted from first operations and 6 from second or later operations.

In estimating the mortality of the treatment attention must be paid not only to the deaths resulting from first operations, but to the death-rate of any necessary secondary operations as well. Since at least 40 per cent. of the series required secondary operations the mortality of the treatment cannot be less than $13 + 3.2$ —i.e., 16.2 per cent. (there were 75 secondary operations, with 6 deaths, a mortality for secondary operations alone of 8 per cent.); and it must actually be somewhat greater than this because many of the patients were exposed to the 3.2 per cent. risk several times (some of the patients underwent as many as five or six operations). It is fair to point out, however, that many of these children had a harelip operated upon at the same time as the cleft palate, and it is uncertain to what extent the operation on the lip contributed to the child's death; at any rate, operations on bad cases of harelip have a mortality of their own.

There is no great dissimilarity in the mortality rate for operations upon the different classes of cleft until we come to clefts of the soft palate only; in these the mortality is distinctly lower than in the more severe cases.

For complete clefts there were—

35 primary operations, with 5 deaths	= 14.28 per cent.
33 secondary " " 3 " "	= 9.0 " "

For clefts of soft and part of hard palate there were—

45 primary operations, with 6 deaths	= 13.3 per cent.
39 secondary " " 1 death	= 2.56 " "

For clefts of soft palate only there were—

11 primary operations, with 1 death	= 9.0 per cent.
-------------------------------------	-----------------

The secondary operations for clefts of the soft palate were too few for conclusions to be drawn from them.

One death from a primary operation and one after a secondary one occurred in cases in which the extent of the cleft was not stated in the notes.

Probably the above data represent the mortality from secondary operations at rather too high a figure, for almost certainly some cases underwent a larger number of secondary operations than appeared in reading the notes of a limited period of years. As regards the causes of death, pneumonia and diarrhoea and vomiting had the chief share.

It is instructive to note that in 9 cases death took place shortly after the child had returned home; and further, in view of the statement that operations for cleft palate in early infancy are not attended with special danger, that among 44 first operations for all varieties of cleft, under the age of 3 months, 9 were fatal, a percentage of 20.45; whereas of 56 first operations upon children over that age only 4 resulted fatally, a percentage of 7.14. It must be borne in mind that it is for use in early infancy that the operation has been specially designed. Of lesser complications 2 cases (Nos. 74 and 76) of recurrent hæmorrhage occurred.

We have next to consider

The Results as regards Closure of the Cleft.

Reliable data as to this point can only be obtained by confining attention to the patients who have been seen. Although the parents of the children could perhaps be trusted to note correctly whether the hard palate was or was not completely healed, experience showed the futility of trusting to their statements about the soft palate.

The results in these 40 cases were as follows:—

(a) 15 cases of complete cleft of hard and soft palates:—			
Complete closure...	After one operation	...	3
	" more than one operation	...	4
Partial closure	After one operation	...	2
	" more than one operation	...	6
(b) 19 cases of cleft of soft and part of hard palate:—			
Complete closure...	After one operation	...	4
	" more than one operation	...	4
Partial closure	After one operation	...	4
	" more than one operation	...	4
Failure	After one operation	...	1
	" four operations	...	1
(c) 6 cases of cleft of the soft palate only:—			
Complete closure...	After one operation	...	3
Partial closure	After one operation	...	3

Several of the cases described as "partial closure" have only small holes left, the rest of the palate being completely healed.

The Manner of Healing: Effect on the Teeth.

More must be said about the manner of the healing. It has been objected to the flap operation that its method of performance necessarily leads to a large raw surface being left, with such scarring as a result as will generally lead to a short and stiff and functionally imperfect soft palate. In this series, where the hard palate has been operated upon, it has generally shown scarring; in the case of the soft palate this is by no means uniformly the case; several of the patients have well-formed and movable soft palates, with little or no evidence of scarring. This is doubtless due to the device of covering part of the raw surface of the main flap by a second flap derived from the nasal surface of the other half of the soft palate. But in more cases than these the soft palate as well as the hard is scarred, shortened, and its mobility is interfered with.

A result of scarring in the hard palate is sometimes seen in interference with the teeth. It is to be expected that in the case of wide complete clefts—when the flap has been taken not only from the palate but also from the alveolar process—damage might result to the underlying teeth, which are not, of course, protected by bone below. Examination of the cases in this series in which it is most likely that the flap may have been so formed—i.e., children with complete clefts operated upon at or under the age of 6 months—shows that in the majority the temporary teeth are very faulty. In one case (No. 30), seen at the age of 6 years, there were no upper teeth present; while in another (No. 27), at the age of 6½ years, the only teeth present were two incisors in the still much displaced premaxilla, and the two first permanent molars, which were healthy. In most of the cases the teeth showed caries, variable in degree, but in a few they were good.

The permanent teeth apparently escape damage; in many of the cases the first permanent molars were found healthy, and several of the children were old enough to show other healthy permanent teeth. Case 4 is a good example. This boy had a complete cleft palate with left harelip; his first operation was at the age of 3 months. Seen when 6 years old, he possessed in his upper jaw only the two sound first permanent molars and a displaced central incisor; seen again at the age of 10, three other permanent teeth had appeared; these were all sound. (Fig. 1.)

The teeth may be affected in another way, even when the alveolar process has not been encroached upon in making the flap. If much scarring occurs

in the healing of the hard palate the contracting scar tissue may draw inwards one or more of the teeth. Such scarring is of course most likely to occur on the side from which the flap has been raised, since a raw surface is left here; but on the opposite side also, if any extensive raising of the mucoperiosteum from the bone has been done, cicatrization and consequent displacement of the teeth may also occur. The condition may therefore follow Langenbeck's operation, as has been shown by Berry. Several instances were found in the series of cases under discussion.

Fig. 2 shows an extreme case; it represents the palate of a girl, aged 15 (Case 59), who had been operated on at the age of 7 for a cleft of the soft and the posterior three-fourths of the hard palate. Much scarring of the hard palate resulted, with displacement inwards of five of the teeth; the soft palate is short on the left side, but moves fairly. The patient speaks badly, probably owing in part to the condition of the teeth.

The next drawing (Fig. 3) shows displacement inwards of a second bicuspid tooth. The patient, a boy aged 12, had had a cleft of the soft and the posterior fourth of the hard palate operated upon at the age of 2 years and 8 months. The posterior part of the hard palate is scarred, and opposite the displaced tooth there remains a tiny hole. The soft palate, apart from a cleft uvula, is good, and the child spoke fairly, though with a distinctly nasal intonation.

Case 73, shown in Fig. 4, had had two operations, respectively at 13 months and 5½ years, for a cleft involving the soft and the posterior two-thirds of the hard palate. A small hole remains in the hard palate, with scarring around, and the left side of the alveolar arch is pulled inwards. The soft palate is short and moves little; the speech is poor.

A similar flattening of the alveolar arch on the right side is shown by Case 69 (Fig. 5). The cleft, operated upon at the age of 10 months, had been complete, but without harelip. Several teeth on the right side are displaced inwards; the palate is healed, but the soft palate is short and moves very moderately. Speech is fairly good, though nasal.

Condition of Speech.

In considering the effect of the treatment upon the speech account has again only been taken of the results in the 40 patients who have been seen. None of the patients received skilled training after the operation; and the expression of the results is of course to a considerable extent a matter of individual opinion. In tabulating them the cases have been classified according to the extent of the cleft, and the speech has been recorded as either (1) good, (2) fair, or (3) poor or bad.

(a) In 15 cases of complete cleft of hard and soft palate—

The speech was good in	...	1 case.
" " fair in	...	3 cases.
" " poor or bad in	...	11 "

In only 3 of these last 11 cases was the palate completely healed, and 9 of them, including these 3, had undergone more than one operation.

(b) In 19 cases of cleft of soft and part of hard palate—

The speech was good in	...	2 cases.
" " fair in	...	4 "
" " poor or bad in	...	13 "

Only 4 of the 13 "bad" cases had the palate completely healed, and 7 had undergone more than one operation.

(c) In 6 cases of cleft of soft palate only—

The speech was good in	...	3 cases.
" " fair in	...	1 case.
" " poor or bad in	...	2 cases.

Of the 3 cases who spoke well 2 had obtained complete healing after only one operation, and in the third case only a tiny hole remained.

All of these had well-formed and movable soft palates. Fig. 6 represents the palate of Case 8, 9½ years after operation; there is no scarring, and the soft palate, even to the

TABLE III.—100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results.

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
1	M., 7 mos.	Soft palate.	April 25th, 1905.	Complete closure.	Well-formed and freely movable soft palate.	Good. Trouble with <i>th</i> and <i>s</i> . No special training.	Seen Sept., 1911. (Recently dead.)
2	M., 3 mos.	Not stated.	April 25th, 1905.	Not stated.	Cannot be traced.		—
3	M., 7 days.	Complete; right harelip.	1. April 28th, 1905. 2. July 21st, 1905. 3. May 8th, 1906. 4. June, 1907 (lip only). 5. Dec. 10th, 1907.	Partial closure.	Hard palate healed; surface very irregular, especially on right side, owing to scarring. Soft palate almost absent; remnants seen on each side are slightly movable.	Poor; ordinary speech usually unintelligible, but separate words can be understood. Most trouble with <i>b</i> , <i>d</i> , <i>s</i> , <i>th</i> , <i>z</i> , <i>g</i> .	Seen July, 1911.
4	M., 3 mos.	Complete; left harelip.	1. May 2nd, 1905. 2. Jan. 11th, 1907. 3. , 1907 (lip only).	—	Palate healed; arch almost absent. Soft palate moderately movable; uvula absent. Teeth: Only five present in upper jaw; these are sound. (Fig. 1)	Fair; intelligible if he talks slowly. Trouble with <i>s</i> , <i>r</i> .	Seen Dec., 1914.
5	F., 8 wks.	Complete; left harelip.	1. May 19th, 1905. 2. Oct. 24th, 1905.	Small hole left. Hole closed.	Hard palate healed; a carious milk tooth is displaced inwards on to left side of palate. Soft palate: Only most anterior part is joined.	Bad; usually unintelligible and very nasal. Special trouble with <i>b</i> , <i>d</i> , <i>th</i> , hard <i>g</i> , <i>s</i> .	Seen Feb., 1912.
6	F., 2 mos.	Soft, and most of hard palate.	1. May 19th, 1905. 2. Oct. 24th, 1905. 3. Mar., 1906. 4. Jan. 25th, 1907.	—	Hard palate healed, but very lumpy and scarred. Soft palate short, uvula to left; moves very little.	Fair; usually quite intelligible, though nasal. Has been carefully trained by parents.	Seen Sept., 1912.
7	M., 7 yrs.	Not stated.	May 19th, 1905.	Not stated.	Cannot be traced.		—
8	M., 7 mos.	Soft palate.	June 6th, 1905.	Complete closure.	Well formed, moderately movable soft palate. (Fig. 6.)	Very good, almost perfect. No special training.	Seen Jan., 1915.
9	M., 6 wks.	Cleft palate and harelip.	June 16th, 1905.	—	Death June 18th, 1905.		—
10	F., 3 mos.	Soft, and a small part of hard palate.	June 16th, 1905.	Not stated.	Healed; not much scarring. Soft palate moves badly.	Poor; very nasal.	Seen Jan., 1915.
11	F., 5½ mos.	Soft palate.	June 20th, 1905.	Not stated.	Hole, admitting a probe, at junction of soft and hard palates, in middle line. Soft palate movable; its posterior border is oblique, so that palate is short on right side.	Intelligible with difficulty; special trouble with <i>j</i> , <i>th</i> , <i>s</i> , <i>z</i> , <i>r</i> , <i>sc</i> .	Seen Sept., 1911.
12	M., 8 mos.	Hard and soft.	1. June 23rd, 1905. 2. Nov. 17th, 1905. 3. Nov. 23rd, 1906.	Part of soft palate healed. Held well.	"There is a hole in front part of palate. Teeth in upper jaw are rotten."	"Bad. Has had no special training."	Letter from father Sept., 1911.
13	M., 6 yrs.	Soft, and half of hard palate.	1. July 7th, 1905. 2. May 1st, 1906	Small hole left.	Healed; soft palate moderately movable; its posterior border is oblique, making the palate very short on right side. Uvula drawn to right.	Poor; many words quite unintelligible, though many are fairly pronounced; worst trouble with <i>p</i> , <i>b</i> , <i>t</i> , <i>d</i> , <i>k</i> , <i>g</i> . Intelligent boy.	Seen Sept., 1911.
14	M., 10 mos.	Complete; double harelip.	July 7th, 1905. Lip closed Jan., 1906.	Complete closure.	"Palate healed, though narrower than ordinary. Teeth good."	"His teacher can understand, as can home folk, strangers not. Has not had special training."	Letter from father Oct. 23rd, 1911.
15	M., 9 mos.	Complete; right harelip.	July 7th, 1905. Lip closed July 19th, 1905.	Complete closure.	Cannot be traced.		—
16	F., 1½ yrs.	Not stated.	July 11th, 1905.	Not stated.	Cannot be traced.		—
17	F., 9 mos.	Soft palate.	July 18th, 1905.	Complete closure.	Soft palate well-formed—good uvula. Tiny hole on right side at junction of hard and soft palates.	Good; trouble with <i>r</i> . No special training.	Seen Sept., 1911.
18	M., 11 wks.	Complete; left harelip.	July 25th, 1905.	Not stated.	Cannot be traced.		—
19	F., 10 mos.	Soft palate.	July 28th, 1905.	Palate healed.	Death Aug. 24th, 1905. Child wasted continuously after operation—was much worse than before.		Conversation with woman who nursed the child in its illness. Mother seen Sept., 1911.
20	F., 2 mos.	Soft, and posterior two-thirds of hard palate.	1. , 1905. 2. Dec. 1st, 1905.	—	Incomplete closure. Another operation would have been performed, but child died on Good Friday, 1906, after an acute illness of 4 days' duration.		—
21	F., 4 yrs.	Soft, and posterior two-thirds of hard palate.	1. Sept. 1st, 1905. 2. ? date. 3. Oct. 7th, 1906. 4. Jan. 25th, 1907.	Failure. Failure. Partial closure. Collapse and vomiting after operation.	Cannot be traced.		—
22	F., 5 wks.	Soft palate.	Oct., 1905.	Complete closure.	Soft palate healed, not movable. Well-formed uvula.	Poor, scarcely intelligible; special trouble with <i>t</i> , <i>th</i> , <i>r</i> , <i>l</i> .	Seen Sept., 1911.
23	M., 4 mos.	Complete; double harelip.	1. Oct. 16th, 1905. 2. Jan. 30th, 1906.	Anterior part closed. Complete closure.	Cannot be traced.		—
24	F., 11 mos.	Soft, and posterior ½ inch of hard palate.	Oct. 6th, 1905.	Complete closure.	Cannot be traced.		—
25	F., 9 mos.	Soft, and posterior half of hard palate.	Oct. 12th, 1905.	Posterior quarter only healed.	Child died in hospital Jan. 3rd, 1906. Was ill continuously from time of operation until death.		Father seen June, 1912.
26	F., 18 mos.	Soft, and posterior two-thirds of hard palate.	Oct. 26th, 1905.	Palate held.	Death took place a few days after leaving hospital.		Letter from mother Nov., 1911.

TABLE III.—100 Consecutive Cases of Cleft Palate treated by Arbutnot Lane's Operation, with their Immediate and Remote Results—(Continued).

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
27	M., 6 mos.	Complete; double harelip.	1. Oct. 26th, 1905. 2. Feb. 9th, 1906. 3. June 5th, 1906 (lip only).	Anterior half closed. Complete closure.	Premaxilla projects forwards; large gap between it and front of palate, which is closed except median part of anterior half of hard palate. Soft palate closed, but scarred and short. Teeth absent except two incisors and first permanent molars.	Poor; ordinary speech unintelligible, but some isolated words moderately pronounced.	Seen Nov., 1911.
28	F., 3 mos.	Soft, and posterior two-thirds of hard palate.	1. Oct. 31st, 1905. 2. Jan. 30th, 1906. 3. April 13th, 1906. 4. Dec. 17th, 1906.	— — — Failure.	Operations completely failed; practically no palate left except nodular scar tissue at sides of a huge cleft.	Child very nervous; could only be got to say a few words—these almost unintelligible.	Seen Oct., 1911.
29	M., 2½ yrs.	Soft, and posterior quarter of hard palate.	Oct. 31st, 1905.	Complete closure.	Palate healed, except uvula and small hole in hard palate. Soft palate moves fairly. (Fig. 3.)	Fair; distinctly nasal.	Seen Jan., 1915.
30	M., 8 wks.	Complete; double harelip.	1. Nov. 3rd, 1905. 2. Dec. 18th, 1905 (lip only). 3. Mar. 2nd, 1906. 4. May 1st, 1906. 5. Nov. 9th, 1906. 6. July 2nd, 1907. 7. Jan. 14th, 1908.	—	Soft palate absent; hard palate shows a hole, 5 × 4 mm., at anterior part; rest healed, with much nodular scarring. No teeth in upper jaw.	Very bad; generally unintelligible.	Seen Sept., 1911.
31	M., 5 wks.	Soft, and posterior half of hard palate; right incomplete harelip.	Nov. 7th, 1905.	Complete closure.	Death from diarrhoea at age of 11 months.		Letter from father June, 1912.
32	F., 18 mos.	Soft, and posterior half of hard palate.	1. Nov. 14th, 1905. 2. Mar. 7th, 1906. 3. Nov. 23rd, 1906.	Failure. Abscess in neck followed. — Healed.	"Palate is completely closed back and front, but a small hole about middle, which is smaller now than at first."	"Cannot be understood by strangers quite at first, but some are able, and at school she is understood; had no special training. Can read aloud quite plain."	Letter from mother Oct. 23rd, 1911.
33	F., 3 mos.	Soft, and posterior half of hard palate; double harelip.	1. Nov. 21st, 1905. 2. Jan. 26th, 1906.	Partial closure. —	Child died 3 days after return from hospital from pneumonia.		Letter from mother, Oct., 1911.
34	M., 1 mo.	Complete; double harelip.	1. Nov. 21st, 1905.	Anterior two-thirds of cleft closed. Not stated.	Cannot be traced.		—
35	F., 6 wks.	Soft palate.	1. Dec. 1st, 1905. 2. Jan. 23rd, 1906.	Failure. Failure. Very ill with diarrhoea after operation.	Child died, Feb. 22nd, 1906, "in a fit."		Interview with mother Dec., 1914.
36	F., 5 mos.	Congenital central cleft.	Dec. 13th, 1905.	Complete closure.	Child died May, 1908, from "epilepsy and paralysis." Palate was healed.		Letter from father from Canada, Jan., 1912. Seen Oct., 1911.
37	M., 3 wks.	Complete; left harelip.	1. Dec. 15th, 1905. 2. Mar. 23rd, 1906. 3. Aug. 29th, 1907 (lip only).	— Hole remained in soft palate. —	Hole on right side, at junction of hard and soft palates. Soft palate very short and very little movable.	Poor, but usually intelligible; trouble especially with <i>th</i> and <i>s</i> .	Seen Oct., 1911.
38	F., 10 wks.	Soft, and posterior half of hard palate.	Dec. 19th, 1905.	Complete closure (?)	Died at age of 6 months from pneumonia. Was to have had a second operation.		Interview with mother Dec., 1914. Seen Nov., 1911.
39	M., 4 mos.	Complete; double harelip.	1. Jan. 2nd, 1906. 2. Mar. 13th, 1906 (lip only).	Healed.	Hard palate healed; premaxilla in position but quite loose, with a fissure on each side of it. Soft palate widely cleft; remaining tissues scarred and deformed, and do not move much. Teeth very carious.	Bad; quite unintelligible as a rule and very nasal.	Seen Nov., 1911.
40	M., 6 wks.	Soft, and posterior two-thirds of hard palate 5/8-3/4 in. wide.	1. Jan. 5th, 1906. 2. Mar. 20th, 1906. 3. July 13th, 1906.	— Healed.	Died from convulsions 7 months after last operation. Palate was completely healed.		Letter from father Dec., 1912.
41	F., 7 wks.	Soft, and posterior two-thirds of hard palate 1/2 in. wide.	Jan. 5th, 1906.	Healed.	Cannot be traced.		—
42	M., 4 wks.	Soft, and posterior half of hard palate; right incomplete harelip.	Jan. 9th, 1906.	Healed.	"Palate: We have never had any trouble in this respect. Teeth: Are somewhat irregularly placed, and a few have required the attention of the dentist."	Fair; can be understood if he speaks deliberately. Often unintelligible if he speaks fast. Trained for a year, and improving.	Letter from father Nov., 1911.
43	M., 3 wks.	Complete; left harelip.	1. Jan. 16th, 1906. 2. April 3rd, 1906.	Anterior half did not hold.	Death 5 days after second operation; persistent vomiting.		—
44	M., 1½ yrs.	Soft, and posterior half of hard palate 1/2 inch wide.	Jan., 1906.	Healed.	Hard palate healed. Soft palate short, movable; posterior 1/2 inch is ununited.	Very bad; usually unintelligible; special trouble with <i>b</i> , <i>d</i> , <i>k</i> .	Seen Sept., 1911.
45	F., 5 wks.	Soft, and posterior half of hard palate; left incomplete harelip.	Jan. 26th, 1906.	Healed.	Healed; hard palate ridged and grooved; soft palate fairly well-formed; no uvula. Teeth rather irregular—otherwise not bad.	Child could not be made to speak. Mother says she speaks fairly, though strangers cannot at first always understand her.	Seen Oct., 1912.
46	M., 2 wks.	Complete; left harelip.	1. Feb. 2nd, 1906. 2. Apr. 13th, 1906.	Posterior third and a small gap anteriorly remained unjoined. Diarrhoea.	Death about May 8th, 1906.		—

TABLE III.—100 Consecutive Cases of Cleft Palate treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
47	F., 11 yrs.	Soft, and posterior half of hard palate $\frac{1}{2}$ inch wide. Harelip cured.	Feb. 6th, 1906.	Failed.	"The palate is still open, except a small part at the back."	"She speaks fairly plain with us, but strangers do not understand her, and she has had no training."	Letter from mother Nov., 1911.
48	M., 6 wks.	Not stated. Child cyanosed; loud heart murmur; thrush and diarrhoea which were treated before operation for nearly 3 weeks.	Feb. 27th, 1906.	—	Death from broncho-pneumonia. April 3rd, 1906.		—
49	M., 7 yrs.	Soft, and posterior half to two-thirds of hard palate.	Feb. 23rd, 1906.	Failure.	Cleft widely open; very little tissue at sides of cleft.	Poor; markedly nasal. Mother says he can be understood at school.	Seen Sept., 1912.
50	F., 6 wks.	Soft, and posterior three-quarters of hard palate; left harelip.	Feb. 16th, 1906.	Failure.	Death from pneumonia the day after return from hospital.		Conversation with mother Oct., 1912.
51	M., 4 wks.	Complete; left harelip.	1. Feb. 23rd, 1906. 2. Feb. 16th, 1907 (lip only).	Not stated.	Hole, about 5 mm. diameter, on left side at junction of hard and soft palates. Soft palate healed, but short and almost motionless. Teeth irregular; 3 are carious.	Markedly nasal. Ordinary speech only with difficulty intelligible, though separate words quite intelligible.	Seen Nov., 1911.
52	M., 5 wks.	Complete; left harelip.	Feb. 27th, 1906.	Suppuration; abscesses in left cheek and in sub-maxillary regions. Death.	—		—
53	F., 3 mos.	Soft palate.	Mar. 2nd, 1906.	"Improved."	A neighbour tells me that the child went abroad with parents 3 years after operation; talked indistinctly, but could be understood.		June, 1912.
54	F., 5 wks.	Complete; right harelip.	1. Mar. 6th, 1906. 2. Mar. 13th, 1906 (lip only). 3. May 15th, 1906 (lip only).	Healed. Failed.	Healed; both hard and soft palates much scarred. Arch of hard palate almost non-existent. Soft palate moves very little; uvula to left side. Alveolar arch and teeth irregular.	Nasal, but fair; usually intelligible; trouble especially with <i>s</i> and <i>r</i> .	Seen June, 1912.
55	M., 9 yrs.	Soft palate and part of hard.	1. Mar. 9th, 1906. 2. June 8th, 1906.	Failed.	Widely cleft.	Fair since insertion of obturator; before this unintelligible.	Letter from patient's dentist Nov., 1911.
56	F., 4 mos.	Soft palate.	Mar. 13th, 1906.	Not stated.	"The operation was a failure."	"She speaks very well and can be understood by strangers. She has not had any special training."	Letter from father Nov., 1911.
57	M., 2 wks.	Complete; no harelip.	1. Mar. 16th, 1906. 2. Nov. 2nd, 1906.	? Partial sloughing of flaps. Complete closure.	Healed; arch low. Soft palate short and almost immovable. Teeth slightly irregular in front; one premolar on each side badly carious.	Markedly nasal, but quite intelligible as a rule; trouble especially with <i>th</i> and <i>s</i> .	Seen Nov., 1911.
58	F., 2 wks.	Complete; left harelip.	Mar. 23rd, 1906.	—	Died a week after operation from pneumonia.		—
59	F., 7 yrs.	Soft, and posterior three-quarters of hard palate.	April 6th, 1906.	Complete closure.	Healed, with a good deal of scarring of hard palate. Soft palate very short, especially on left side. Moves moderately. Upper teeth in good condition, but extremely irregular. Lower teeth not irregular. (Fig. 2.)	Bad, and very nasal. Can be understood with difficulty; but is mentally dull.	Seen Dec., 1914.
60	M., 10 wks.	Soft, and small part of hard palate.	April 6th, 1906.	Held well.	Child very ill after operation with vomiting. Death 5½ weeks after operation, vomiting continuing.		Letter from father Nov., 1911.
61	F., 3 mos.	Soft, and small part of hard palate.	April 24th, 1906.	Held well.	Hard palate healed. Soft palate widely and irregularly cleft in almost its whole extent. Right half moves, but left half scarcely at all. Teeth natural.	Fair; distinctly nasal, but quite intelligible, especially as regards individual words.	Seen Nov., 1911.
62	F., 1½ yrs.	Soft, and posterior two-thirds of hard palate.	May 8th, 1906.	Small hole at anterior part.	Cannot be traced.		—
63	F., 10 wks.	Soft palate.	May 11th, 1906.	Partial closure.	Soft palate very short, apparently only the anterior part remaining, with a small portion and the remains of the uvula on the right side. Moves very little.	Fair, and said to be improving; nasal. Individual words easily intelligible, but continuous conversation not easily understood.	Seen Dec., 1911.
64	F., 6 wks.	Soft, and posterior two-thirds of hard palate.	May 22nd, 1906.	Healed.	Child died about three months after the operation, wasting all the while and going downhill after return from hospital.		Conversation with woman who nursed child in its illness, and letter from mother Feb., 1912.
65	M., 6 mos.	Complete; left harelip.	1. July 27th, 1906 2. Nov. 30th, 1906 3. June 14th, 1907 4. Aug., 1907 5. Feb., 1908.	Pneumonia after last operation, but recovered.	Hard palate healed, with lumpy scarring. Soft palate short, thick, nearly immovable. Only three teeth present in upper jaw, and those carious; lower teeth also bad. (Fig. 9)	Very bad; unintelligible.	Seen Dec., 1914.

TABLE III.—100 Consecutive Cases of Cleft Palate treated by Arbutnot Lane's Operation, with their Immediate and Remote Results—(Continued).

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
66	F., 4 mos.	Soft, and posterior half of hard palate.	1. May 25th, 1906. 2. May 29th, 1906.	Flaps had to be loosened because of trouble with breathing on table. Second operation followed by abscess and erysipelas of arm.	"Her palate has not quite healed up. Her top teeth are bad."	"She speaks fairly well; has had no special training."	Letter from father, Nov., 1912.
67	M., 10 wks.	Soft, and small part of hard palate.	3. Jan. 24th, 1907. May 25th, 1906.	Middle part held. Not stated.	Good movable soft palate, but rather short; uvula good. Hard palate healed except a small hole at posterior part to right of middle line. Teeth very bad.	Bad, mostly unintelligible. Rather dull child; has not yet started school.	Seen May, 1912.
68	M., 2 yrs.	Soft, and posterior quarter of hard palate.	May 29th, 1906.	Slightly broke down.	Hard palate much scarred; healed except small hole towards left side. Soft palate short, and moves little. Uvula well marked—displaced to right.	Poor; individual words mostly intelligible, but markedly nasal; sentences only with difficulty intelligible; special difficulty with <i>p, w, br, s, z</i> .	Seen Dec., 1911.
69	M., 10 mos.	Complete; no harelip.	June 1st, 1906.	Healed.	Healed. Soft palate short, and moves only moderately. Several teeth displaced inwards. (Fig. 5.)	Fair; quite intelligible, but nasal. No special training, but parents always correct him; intelligent boy.	Seen Dec., 1911.
70	F., 1 yr.	Soft, and posterior three-quarters of hard palate.	June 8th, 1906.	Middle part healed.	Cannot be traced.		—
71	F., 2 mos.	Complete; right harelip.	1. June 12th, 1906. 2. Nov. 2nd, 1906 (lip only). 3. May 11th, 1907.	Partial closure. —	"The palate has given way a little and sometimes her food comes down her nose; her teeth are very bad."	"We can understand what she says, but a stranger would not."	Letter from father Nov., 1911.
72	F., 7 mos.	Soft, and posterior three-quarters of hard palate.	1. June 19th, 1906. 2. Oct. 8th, 1906.	Very ill with sepsis afterwards and part of palate gave way.	Healed; no arch. Soft palate short, scarred, and only slightly movable; posterior border oblique. Uvula long. Teeth very irregular; lateral incisors and 1st premolars lie on hard palate.	Good; only slightly nasal; trouble with <i>th, sh, and l</i> .	Seen Jan., 1912.
73	M., 13 mos.	Soft, and posterior two-thirds of hard palate.	1. June 19th, 1906. 2. Dec. 1st, 1910.	Slight gap left posteriorly.	Hard palate much scarred; healed except hole on left side opposite 2nd premolar. Soft palate short, and very little movable; posterior border very oblique, making palate very short on left side. Teeth in both jaws bad. (Fig. 4.)	Poor; only with difficulty intelligible. Only at school 3 months; improving much since then.	Seen Dec., 1911.
74	F., 4½ yrs.	Complete; left harelip cured.	July 6th, 1906.	Hæmorrhage after operation, necessitating anæsthetic and plugging posterior palatine canal with wax. Flaps held.	Cannot be traced.		—
75	F., 13 wks.	Complete; double incomplete harelip.	1. June 29th, 1906. 2. Nov. 27th, 1906. 3. July 5th, 1907.	"Flaps in main held." Hard palate healed. "Slight posterior deficiency."	"The palate is quite healed. Condition of top teeth very irregular and decayed."	"Speech very plain; no special training."	Letter from mother, Dec., 1911.
76	M., 3 wks.	Complete; left harelip.	1. June 29th, 1906. 2. Aug., 1906. 5. Nov. 21st, 1906. 4. Nov. 22nd, 1906 (readjustment of flaps). 5. Summer of 1908.	Hæmorrhage after operation. Flaps separated to stop bleeding.	Hard palate healed with much lumpy scarring; arch obliterated. Soft palate; only a narrow strip in front has healed; rest still cleft; the remnants move fairly well. (Fig. 8.)	Bad; unintelligible and very nasal; no special training.	Seen Jan., 1915.
77	F., 11 mos.	Soft, and posterior third of hard palate.	1. July 10th, 1906. 2. Nov. 13th, 1906. 3. Jan. 27th, 1907. 4. May 28th, 1907 (for hole in hard palate). 5. July, 1911.	Failure. Middle part held. Healed. Failure.	Much scarred; hard palate has no arch, and shows a large perforation anteriorly. Soft palate, short; small hole at middle; is moderately movable.	Poor; ordinary speech very nasal, and only intelligible with difficulty; individual words much better; special trouble with <i>t, f, th, and g</i> .	Seen Dec., 1911.
78	F., 11 days.	Soft, and posterior third of hard palate.	July 10th, 1906.	Failure. Much respiratory distress after operation.	Child died at home 3 weeks after operation.		Conversation with mother, June, 1912.
79	F., 9 days.	Complete; double harelip.	July 17th, 1906.	Not stated.	Death, Sept. 24th, 1906. After operation seemed worse than before; wasting, and finally diarrhoea and convulsions.		Conversation with mother, Dec., 1911.
80	M., 14 mos.	Complete; left harelip cured.	July 20th, 1906.	Not stated.	Healed; soft palate fairly good and movable, but posterior border is irregular.	Good; trouble with <i>s</i> and <i>sc</i> . Has been at school one year, and has improved very much.	Seen Dec., 1911.
81	F., 2½ yrs.	Soft, and most of hard palate.	1. July 24th, 1906. 2. Oct. 12th, 1906. 3. Dec. 14th, 1906. 4. May 14th, 1907. 5. Jan. 7th, 1908.	Anterior part not closed. Partial closure. — — —	"The palate is completely healed."	"She speaks with a nasal twang, but can be fairly well understood by strangers. She has had no special lessons in speaking."	Letter from father, Dec., 1911.
82	F., 4 mos.	Soft palate, and hard up to anterior palatine foramen; double harelip.	1. July 24th, 1906. 2. Nov. 2nd, 1906.	Failure. Not stated.	Child died at home 2 or 3 months after second operation.		Conversation with next door neighbour, June, 1912.

TABLE III.—100 Consecutive Cases of Cleft Palate Treated by Arbuthnot Lane's Operation, with their Immediate and Remote Results—(Continued).

No.	Sex and age.	Extent of cleft.	Operations.	Immediate result.	Ultimate result.		Last report.
					Palate, &c.	Speech.	
83	M., 5 mos.	Complete; double harelip.	Aug. 1st, 1906.	—	Diarrhoea and double otitis media after operation. Died Aug. 10th.		—
84	M., 3 mos.	Complete; left harelip.	1. Oct., 1906. 2. Dec., 1911 (palate and lip).	Chicken-pox after second operation.	Healed. Hard palate scarred; no arch. Soft palate very short on left side; fairly movable. Teeth rather irregular, otherwise fair.	Poor; nasal but generally intelligible with some trouble. At school irregularly for 3 months; speech said not to be improving.	Seen June, 1912.
85	M., 2 mos.	Complete; left harelip.	Oct. 5th, 1906.	—	Death at age of 4 months from pneumonia.		—
86	M., 5 days.	Soft, and hard up to anterior palatine foramen; left harelip.	1. Oct. 12th, 1906. 2. Jan. 8th, 1907. 3. June 25th, 1907. 4. Nov. 19th, 1907 (lip only). 5. ? date. 6. July, 1911.	— — — — — —	Hard palate healed, with much lumpy scarring. Soft palate much scarred, especially on left side; moves little. Small perforation on right side. Teeth fair; several have been removed.	Bad; very often unintelligible, even by parents.	Seen Dec., 1911.
87	F., 2 yrs.	Soft, and posterior two-thirds of hard palate.	1. Oct. 16th, 1906. 2. Jan. 15th, 1907. 3. Nov. 1st, 1907.	— — —	Healed, except for small perforation at posterior part of hard palate. Much scarring of both hard and soft palates. Soft palate very short, and immovable.	Poor; very nasal, and often only with difficulty intelligible.	Seen Oct., 1912.
88	F., 6 mos.	Complete; double harelip.	Oct. 23rd, 1906.	Not stated.	Death "in a fit through teething" when 15 months old.		Letter from father Dec., 1911.
89	M., 2½ yrs.	Cleft palate and harelip; the latter cured.	Oct. 25th, 1906 (soft palate only).	Not stated.	"Completely healed."	Speaks quite plainly, and anyone understands him as long as he speaks slowly.	Letter from father Dec., 1911.
90	F., 5 wks.	Complete; left harelip.	Oct. 30th, 1906.	Not stated.	Child died 3 weeks after operation; inability to suck and regurgitation of milk through nose persisted after operation. Death from broncho-pneumonia Nov. 11th.		Conversation with mother June, 1912.
91	M., 4 mos.	Soft palate, and hard as far as anterior palatine foramen.	Nov. 2nd, 1906.	Difficulty in breathing after operation; tracheotomy on Nov. 5th.	Child died from pneumonia a year after third operation; was to have had another operation.		Letters from father Dec., 1911.
92	F., 7 days.	Complete; left harelip.	1. Nov. 7th, 1906. 2. Jan. 29th, 1907. 3. June, 1907 (lip only).	A small part healed. Partial closure.	Child died when 3½ months old.		Letter from father Dec., 1911.
93	F., 5 wks.	Cleft palate and double harelip.	Oct. 21st, 1906.	Failure.	"He died under his third operation on May 1st, 1908, at the age of 18 months."		Letter from father Dec., 1911.
94	M., 7 wks.	Cleft palate and harelip.	1. Dec. 7th, 1906. 2. May 14th, 1907. 3. May 1st, 1908.	Partial closure. Partial closure. Not stated.	"Completely healed."		Letter from father Dec., 1911.
95	F., 10 wks.	Soft palate.	1. Dec. 11th, 1906. 2. May 17th, 1907.	Failure. "Did not entirely hold."	"She speaks very well; there are a few words she cannot quite pronounce."		Letter from father Dec., 1911.
96	F., 8 mos.	Soft, and small part of hard palate.	Dec. 11th, 1906.	Not stated.	Healed; uvula and soft palate good and movable. (Fig. 7.)	Very good; no nasal tone. Can pronounce all words with scarcely any defect.	Seen Dec., 1914.
97	M., 1 day.	Complete; double harelip.	1. Dec. 16th, 1906. 2. Feb. 5th, 1907.	Partial closure.	Death on Feb. 6th, 1907, from "marasmus and syncope."		—
98	F., 3 wks.	Soft, and posterior two-thirds of hard palate; congenital syphilis.	Jan. 22nd, 1907.	—	Death on Jan. 25th from "marasmus."		—
99	M., 4 mos.	Soft, and part of hard palate.	1. Jan. 8th, 1907. 2. ? date.	"Improved."	Healed; soft palate is short, rather tight, and moves very little; posterior border slightly oblique; uvula absent. Both upper and lower teeth very bad.	Poor; continuous conversation generally unintelligible; individual words fairly pronounced; intelligent child.	Seen Feb., 1912.
100	F., 7 wks.	Complete; right harelip.	Jan. 11th, 1907.	Bridge at back of hard palate healed.	"The baby died soon after going home."		—

Note.—All the cases in this series are "primary" cases—i.e., cases which had undergone no operation upon the palate previous to the first operation recorded here.

The statement of the age of the patient refers to the age at the time of the first operation.

uvula, is well formed. The boy speaks so well that one could not detect from his speech that he had any abnormality.

Another good result, in the case of a cleft of the soft and a part of the hard palate operated on at 8 months old (Case 96), is seen in Fig. 7. The patient's speech at the age of 9 is almost perfect.

The next drawing (Fig. 8) shows the palate of a boy, aged 8 (Case 76), upon whom five operations were performed for complete cleft palate; recurrent hæmorrhage occurred after the third operation. The hard palate is much scarred, the soft for the most part still not healed, and the speech is generally unintelligible.

Another case of an originally complete cleft is shown in Fig. 9 (Case 65). Five operations had been performed, the

first at 6 months old; the whole palate is much scarred, and the boy speaks very badly.

It cannot be said that these results afford support to the view that very early operation is necessary in order to secure good speech. Taking the cases of complete cleft as an example, the single case (No. 80) who spoke well five years after the operation was 14 months old when operated on, while none of the 11 cases whose speech was poor or bad were older than 6 months at the time of the first operation. The five cases of less severity whose speech was good (Cases 1, 8, 17, 72, and 96) were all more than six months of age when treated.

BROPHY'S OPERATION.

Views of its Advocates.

The third method of operation which needs detailed discussion is that devised by Brophy, of Chicago.²⁵ The theory upon which it is based is by now well known. It assumes the deformity to be due to failure of union between the two halves of the palate; each of these, however, is fully developed. When failure of union has occurred the two halves are separated from one another by the upward pressure of the mandible and of the tongue. As a result of this separation the upper jaw is found wider than it should be by the width of the cleft. It is evident that if this is so and the two halves of the upper jaw can be pushed together again and healing be secured, not only will the cleft in the palate be closed, but the jaws will be restored to their normal relationships, and moreover a loose and freely mobile soft palate, in which the element of tension has been abolished, will result, with corresponding improvement in the speech.

These are Brophy's claims, and in accordance with his views he has devised his operation of pushing the bones together in early infancy, and holding them in place by silver wires which transfix their substance and are twisted together over leaden plates applied to the outer side of the alveolar arch. This idea had been suggested by Reeves²⁶ in 1861, but the operation was not performed by him during life. I have not been able to obtain Reeves's paper.

The whole theory seems to depend upon the statement that the upper jaw "is just as much broader than it should be as the distance between the borders of the fissure." What is the standard to which the breadth of the upper jaw should conform? Brophy assumes in his writings that it should be equal to the breadth of the mandible, but advances little evidence in proof of this; as a matter of fact, it is the rule in normal infants to find the upper jaw wider than the lower, as is shown in this photograph (Fig. 10) of a coronal section through the head of a normal full-term foetus, cutting through the posterior part of the hard palate; the width of the upper jaw is 35 mm. while that of the lower is 31.

Table IV. gives the measurements of the width in millimetres of the upper and lower jaws of a series of normal, full-term foetuses. The average difference in favour of the upper jaw is 2.8 mm.

TABLE IV.—Width of Upper and Lower Jaws in a Series of Normal, Full-term Foetuses.

No.	Width of upper jaw.	Width of lower jaw.	No.	Width of upper jaw.	Width of lower jaw.
1 ...	31.5 mm.	30.5 mm.	9 ...	30.0 mm.	30.0 mm.
2 ...	36.5 "	31.5 "	10 ...	35.5 "	32.5 "
3 ...	30.0 "	30.0 "	11 ...	35.0 "	30.0 "
4 ...	32.0 "	28.0 "	12 ...	35.5 "	32.0 "
5 ...	23.0 "	21.0 "	13 ...	34.5 "	31.5 "
6 ...	35.0 "	31.0 "	14 ...	30.5 "	28.5 "
7 ...	30.0 "	28.0 "	15 ...	37.0 "	34.5 "
8 ...	31.0 "	28.5 "			

TABLE V.—Width of Upper and Lower Jaws of a Series of Cases of Complete Cleft Palate in Infants.

Age.	Width of upper jaw.	Width of cleft.	Width of lower jaw.
5 weeks ...	38.0 mm.	11.0 mm.	29.0 mm.
3½ months ...	37.0 "	10.0 "	27.0 "
3 " ...	41.5 "	14.0 "	30.0 "
3 " ...	39.0 "	12.0 "	31.0 "
6 weeks ...	37.0 "	12.0 "	32.0 "
7 " ...	39.0 "	12.5 "	31.0 "
3 months ...	41.0 "	10.0 "	31.0 "
6 weeks ...	36.0 "	11.0 "	30.0 "
Birth ...	40.5 "	9.0 "	32.5 "
7 weeks ...	39.0 "	10.5 "	34.0 "

Table V. gives corresponding measurements of the jaws of 10 infants with complete cleft palate, with the width of the cleft in each case. Here the average difference in favour of the cleft upper jaw is greater than in the normal infants—8.05 mm.; but the average width of the cleft is 11.2 mm. A study both of the average and of the individual cases suggests that, while in cases of cleft palate the upper jaw is wider than the lower compared with the normal, the difference does not, as a rule, account for the width of the cleft; and the wider the cleft the less in proportion is it accounted for by mere pushing outwards of its two sides. Fig. 11 shows one of the cases in which the correspondence was exact, 4 mm. representing the extent both of the cleft and of the difference in width of the jaws.

Examination of skulls showing the condition makes it clear that in cleft palate there is a true defect or absence of tissue. The defect can be seen, and does not need to be inferred from such indirect evidence as that referred to above. The specimens which are before you show it very well, and it is particularly obvious in the case of a cleft involving only a half of the hard palate, in which the normal anterior part of the palate gives the measure of the tissue which should be present posteriorly.

In spite of the fact that this absence of tissue is well marked in the newly born, it has been suggested that it is the result of a secondary atrophy of the palatal processes, occurring after the bones have been pushed asunder. How, then, should the advocates of the theory contend that the width of the cleft is equal to the extent of separation of the maxillæ?

I do not doubt that the principle upon which Brophy's operation is based is unsound; but there can equally be little doubt that when the cleft condition is in existence the fissure is often further widened by the pressing asunder of the maxillæ, either by the pressure of the mandible or by the tongue—not improbably by both. The tongue normally, during early embryonic life, lies between the two palatal processes, as is well shown by Fig. 12, which represents a coronal section of the head of a human embryo of 8 weeks; and in a newly born infant with complete cleft palate the cleft is demonstrably widened by pushing the lower jaw firmly into contact with the upper. The same conclusion is suggested by the measurements already given, and by the oblique position of the pterygoid processes which is often seen in skulls presenting the condition. These processes in the normal skull are nearly vertical, but in cases of cleft palate their lower ends appear to have moved outwards with the maxillæ and palate bones.

It is evident from these considerations that it is not likely that, in most cases, actual closure of a cleft will be accomplished by approximation of the upper jaws, and that such closure will be generally undesirable on account of the narrowing of the jaw which would result.

Results.

In considering the published results of the operation it must be borne in mind that until 1911, when Dr. Brophy demonstrated it in London, the method has probably been imperfectly applied. Certainly his technique differed much from the accounts of it given in text-books at that time.

I shall summarise the results as I have seen them in 10 cases treated at St. Bartholomew's Hospital in 1911 and 1912 at ages varying from 3 weeks to 4 months. The details of these cases were communicated to the International Dental

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.



Boy aged 10. (Case 4.) Condition 9½ years after operation for complete cleft. Palate completely healed, with scarring. The permanent teeth are healthy. Figs. 1 to 9 illustrate the results of operations by Lane's method.

Girl aged 15. (Case 59.) Condition 8 years after operation for cleft of the soft and most of the hard palate. Note the displacement of teeth produced by scarring.

Boy aged 12. (Case 29.) The palate, 9 years after operation for an incomplete cleft, shows scarring around a small hole, with resulting displacement of a bicuspid tooth.

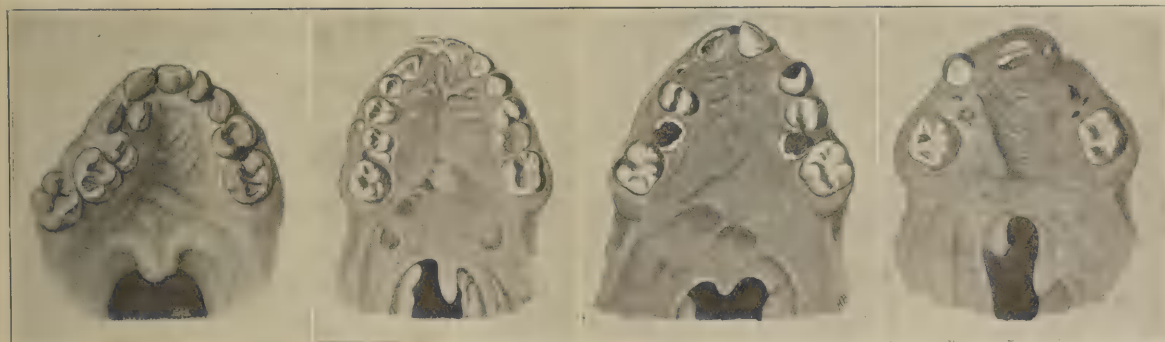
Boy aged 6½. (Case 73.) Condition 5½ years after operation for a cleft of the soft and most of the hard palate. The palate is scarred and a small hole remains, towards which the left alveolar process is drawn in.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 8.



Boy aged 6. (Case 69.) Condition 5½ years after operation for complete cleft. The soft palate is short and the hard scarred, with displacement inwards of several teeth.

Boy aged 10. (Case 8.) Seen 9½ years after operation for cleft of the soft palate. The palate is well formed and movable, scarring is absent, and speech perfect.

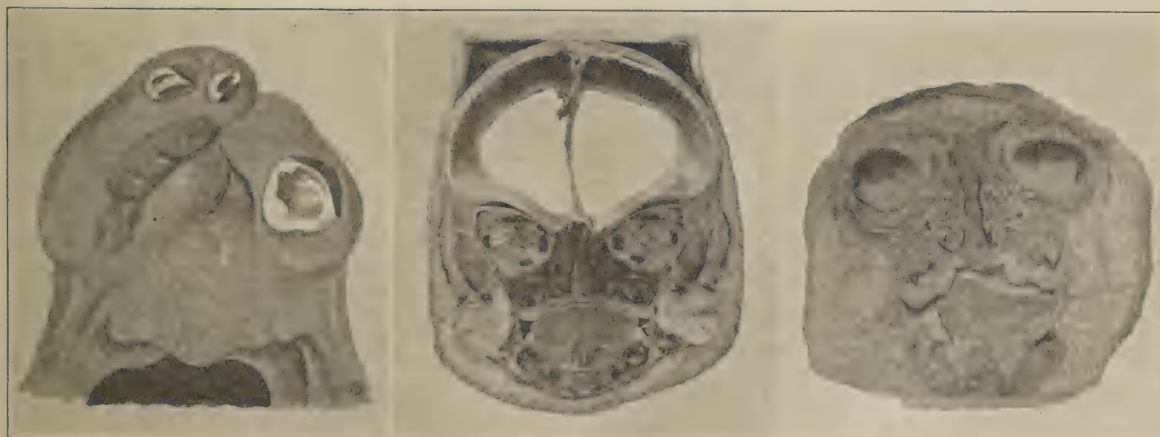
Girl aged 9. (Case 96.) Condition 8 years after operation for an incomplete cleft. There is a good soft palate, and the patient speaks very well.

Boy aged 8½. (Case 76.) Had undergone five operations for complete cleft palate between the ages of 3 weeks and 2 years. The hard palate is much scarred, and the soft for the most part still cleft. The speech is bad.

FIG. 9.

FIG. 10.

FIG. 11.



Boy aged 9. (Case 65.) Condition 8½ years after first operation for complete cleft. No temporary teeth remain. The palate is much scarred, the soft palate stiff, and the speech bad.

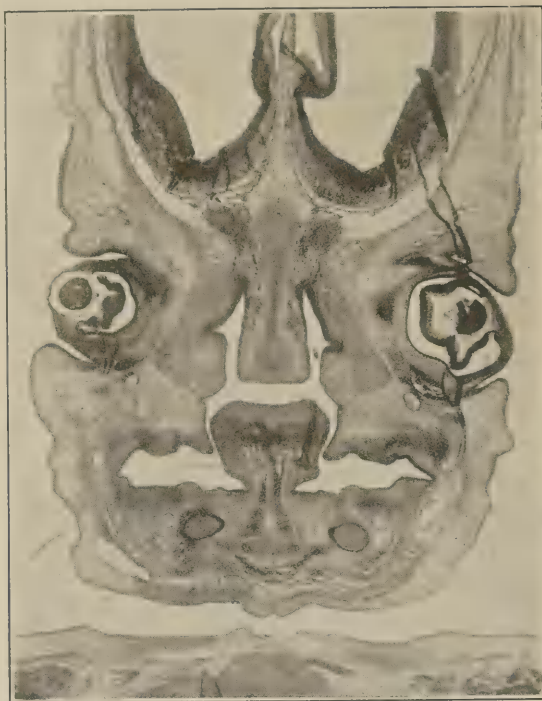
A coronal section of the head of a full-term fetus, through the posterior part of the hard palate; to illustrate the fact that the upper jaw is normally wider than the lower.

A coronal section through the head of an anencephalic fetus, born at full term with cleft palate. The cleft is 4 mm. wide and the upper jaw is wider than the lower by 4 mm.

Congress last year. There were no deaths attributable to the operation, though 3 of the children have died from other causes.

The effect upon the cleft was disappointing and might have been attributed to lack of experience in the operation had not one of the cases, operated upon by Dr. Brophy himself, given similar results. In no case was closure of any part of the cleft

FIG. 12.



A section through the head of a human embryo of 8 weeks. The tongue is seen lying between the two halves of the palate, which are still separated by a wide gap.

effected, except of the gap in the alveolar arch, and possibly a small portion of the hard palate immediately behind this. In only one case was any considerable narrowing of the cleft brought about, and then only by the use of so much force that a fracture of one of the alveolar processes resulted.

These casts illustrate the result of an operation performed by Dr. Brophy (Fig. 13) upon a child 4 months old. The first cast shows the complete left-sided cleft (associated with left harelip) as it existed before the operation. As is usual in such cases the left nostril was large and flattened, and the nose deflected to the right side by the displacement of the premaxilla forwards and to the right. At the end of the operation the alveolar arch and the most anterior part of the hard palate had been closed, while the remainder of the cleft was somewhat narrowed. The effect upon the face was seen in the return of the nose to the middle line, in diminution of the width of the cleft in the lip, and in very great improvement in the shape of the nostril. Two days later only the alveolar arch remained joined, the rest of the cleft appearing almost as before. The second cast shows the condition six weeks later, when the plates and wires had been removed.

Through the courtesy of the authorities at the Hospital for Sick Children, Great Ormond-street, I had the opportunity of seeing a child who had been treated there by Dr. Brophy, when 6 days old, for complete cleft palate with right-sided harelip. The condition of the palate 10 weeks after the operation is seen in Fig. 14. Again only the alveolar arch has been closed, and, although I have no record of the width of the cleft previous to operation, it seems unlikely that any great narrowing had occurred.

None of the cases in the series had better results than these. Although I have not myself performed

Brophy's operation during life, I convinced myself by doing it after death in a case of double cleft palate and harelip, a cast of which is seen in this photograph (Fig. 15), that to approximate the opposite palatal processes, as long as the premaxillary bones remained in position, would have been impossible by any means short of fracturing the bones. The same conclusion was arrived at in the case of a child aged 3 months with double harelip and cleft palate. The condition before and after operation is seen in these casts. (Fig. 16.) When the two sides of the cleft had been approximated as much as was possible a gap of nearly half an inch still remained, although the upper and lower jaws were now equal in breadth.

No report can at present be made upon the speech of these patients, partly because they are still too young, and also because none of the seven survivors yet has the palate completely closed. Dr. Brophy showed, at the Clinical Congress of American Surgeons in July last, three patients all of whom spoke perfectly. Not all of these were examples of what can be achieved by his operation upon the bones in early infancy, one of the patients having been treated by Langenbeck's operation (without lateral incisions) in adolescence.

Much the most complete account of the early results of Brophy's operation has been given by Kaerger,²⁷ who is a warm advocate of the method. His report is based upon 54 cases, all, unfortunately, too recent for an account of the speech to be given. In cases of complete cleft palate with harelip he prefers to operate on the jaws by Brophy's method at about the age of 3 weeks. In cases of double harelip and cleft palate he not only wires the maxillæ themselves, but pushes the premaxilla back into place and fixes it there; he does not attempt to obtain union of the hard palate behind the premaxillæ by this operation. In complete unilateral clefts he usually expects to obtain union of the alveolar arch and of the anterior third of the hard palate, but has seen cases in which the whole hard palate was united. The shock of the operation is said to be so little that the children are often treated as out-patients. Kaerger usually closes the palate by median suture at the age of about 3 months, and operates on the harelip a fortnight later. He aims, therefore, at completing the treatment by the age of 3-4 months. Thirty-nine of the 54 cases had the plastic operation upon the bones performed; 3 deaths appear to have been due to this operation, while 3 others followed median suture of the palate, and 1 was due to operation for harelip. Of 18 cases of complete cleft in which the treatment had been completed, 13 are reported to have required only one operation for median suture of the palate.

OTHER METHODS INVOLVING PLASTIC OPERATIONS UPON THE BONES.

For the closure of clefts of the hard palate plastic operations upon the bones have at various times been used, since Dieffenbach in 1834 suggested making an incision through the mucous membrane at the side of the hard palate, dividing the palatal process longitudinally with a saw, and drawing the edges of the cleft together with wire sutures. Although he described the operation in detail in 1845 it is not known that he ever actually employed it. It was tried on the Continent by a number of surgeons, and in this country by Fergusson, but for the most part with indifferent success, and it has long been given up.

Gay²⁸ in 1851 bridged a cleft of the hard palate by turning down the septum nasi, already attached

along one side of the cleft. Weber described in 1859 an operation allied to Brophy's. His patient was a child, aged 6 weeks, the subject of right harelip and a cleft of the alveolar process as far as the anterior palatine foramen. The edges of the cleft were pared, and brought into contact by two wire sutures penetrating the bones. The result was good.³⁰

Schoemaker,³⁰ having been unsuccessful with Brophy's method, has modified it by mobilising the jaws so freely that all tension is abolished, and no special means are needed to keep the bones in place. At the same time he rotates the jaws on their antero-posterior axis, so as to make the palatal processes horizontal and to avoid as far as possible any narrowing of the upper jaw. His operation, which he advises for use on young infants, consists in chiselling through the maxilla from before backwards, just above the palatal process, on one or both sides; after the bones have been pushed together the edges are pared and sutured. He records 12 operations, with 1 death from hæmorrhage. The late results are not given. The operation appears to me to be entirely unjustifiable.

In older patients Helbing has tried to make wide clefts narrower before operation by the use of an apparatus which presses the jaws together. After this has been used for six weeks the molar teeth are nearer together by 2 cm., but the cleft is narrowed less than this because some rotation of the jaws on their antero-posterior axis occurs. He relates the case of a boy, aged 5½, upon whom an unsuccessful operation for a wide complete cleft had been performed at the age of 3. Helbing³¹ operated by dividing, on the right side, the junction of the maxilla with the malar, and then pushing the maxilla over towards the left side, where it was fixed with wires and plates. Paring and suture of the palate were done four days later. Complete healing followed, with no deformity. Codivilla³² describes a similar mode of treatment, successfully performed upon a boy, aged 5.

I saw in 1912 a boy, aged 5, who had a complete cleft palate which had been unsuccessfully operated upon, and which was judged to be too wide to be closed in the ordinary way. The patient was under the care of Mr. Waring. An incision was made in each cheek, and through these cuts an osteotome was introduced so as to separate the malar bone from the maxilla on each side. After the wounds had healed the maxillæ were approximated by a combination of pressure by an apparatus specially devised, and forcible movement under an anæsthetic. The cleft was in this way somewhat narrowed, and Langenbeck's operation was then performed with success. Some such method may have a limited field of application in cases otherwise inoperable.

CHOICE OF METHOD OF OPERATION.

I have not attempted to put before you any new suggestions as to the treatment of cleft palate, or even to advance anatomical or embryological data upon which new methods might be based. A more urgent need is a knowledge of the results which may be obtained by the existing methods of treatment. Such knowledge has in the past been available only in the case of Langenbeck's operation; I have tried to determine the results of Lane's and of Brophy's operations as well. Incomplete as the investigation is, it nevertheless affords material for a decision as to the choice of a routine method of operation.

I have said that the principle of Brophy's operation is unsound; but it is not clear that on that

account it ought to be altogether abandoned. It has this much of truth in it, that a cleft palate having developed, the cleft may be widened by separation of the two halves of the upper jaw; and there may be cases in which an operation by another method may be made easier and more likely to succeed by a preliminary approximation of the maxillæ, preferably during the first three months of life. The usual result of the operation

FIG. 13.

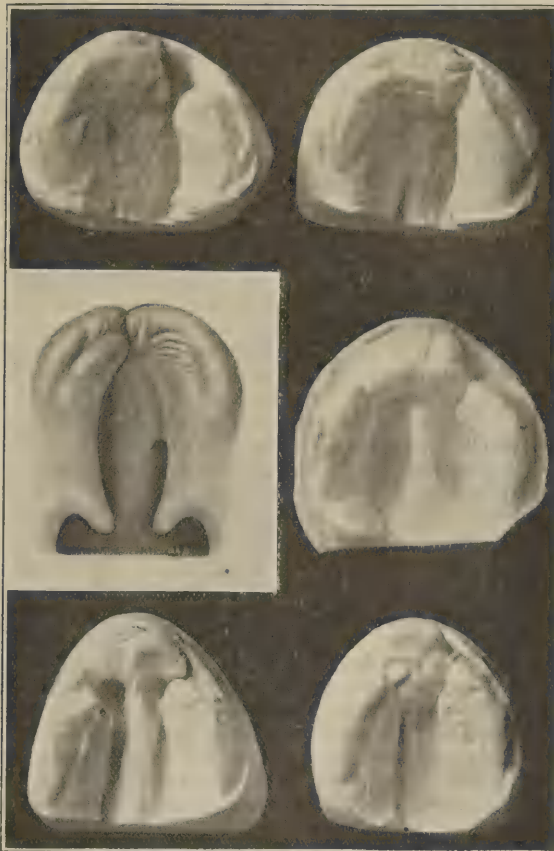


FIG. 16.

FIG. 13.—Photographs of casts illustrating the condition before and six weeks after Brophy's operation in a female child 4 months old. Closure of the alveolar arch has been effected, but the cleft of the palate is not greatly narrowed. Operation by Dr. Brophy. (Note that the nasal septum attached to the right side of the palate is very broad and fills a large part of the cleft.)

FIG. 14.—The palate of a child 10 weeks old, who had been operated upon by Dr. Brophy at the age of 6 days. Closure of the alveolar arch only has resulted from the operation.

FIG. 15.—A cast showing double cleft palate in an infant a few days old. The palatal processes are very deficient and their approximation by Brophy's operation was impossible.

FIG. 16.—Casts showing condition before and six weeks after Brophy's operation in a case of double cleft palate in an infant aged 3 months. The alveolar arch was closed, and the cleft behind this somewhat narrowed.

appears to be, however, closure only of the alveolar arch, with no great narrowing of the cleft behind this. Not inconsiderable, however, is the improvement in the appearance of the face produced by the bringing of the nose to the mid-line and the narrowing of the cleft in the lip. Granted that the mortality of the method is probably not high, is it justifiable to recommend it as a routine measure to obtain such a result? Each surgeon will decide for himself, but the matter is at any rate doubtful, especially as it is well known that almost similar

results may follow, with much less risk, if the harelip be closed and an interval of a few months be allowed to elapse.

And, with reference to the possible bad cases of cleft palate in which Brophy's operation might be used as a preliminary to other methods of treatment, such cases can probably all be closed either by Lane's operation in early infancy or by Langenbeck's method at a later date. But since more than mere closure of the cleft is aimed at, it is likely that the ultimate functional result will sometimes be better if Brophy's operation has been carried out as a preliminary. As a routine measure I think that it ought not to be used.

The rival claims of the operation of median suture and of that of the turn-over flap will continue to be discussed. Surgeons accustomed to use one of these methods with success (and success may be obtained by either) will not readily abandon it for the other. My personal belief is that in cases of cleft of the soft palate alone, or of the soft palate and a small part of the hard, there is probably little to choose between the results in cases treated by the best hands; but that in cases of greater severity there is a much better prospect of success if Langenbeck's operation is used at a suitable age by a surgeon accustomed to its performance.

It can no longer be urged in favour of the flap operation either that it is a life-saving measure or that very early operation is likely to result in greatly improved speech. The facts that I have laid before you suggest the contrary.

I conclude that Langenbeck's operation is still the best for routine use. The question as to the best age for its performance does not admit of precise answer. It is doubtful if any great advantage results from performing it during the first year of life, and it is certain that the prospect of success during the second or third year will often be better. Further delay is not usually necessary, but may in bad cases be advisable. Surgeons who a few years ago were content to operate in the third year or later now often perform median suture on children 1 or 2 years old. The experience of the operator, the width of the cleft, together with the height of the palatal arch and the general health of the child, have all to be considered before a decision is reached. If the condition is complicated by the presence of a harelip closure of the latter during the first few weeks of life has a valuable effect in causing obliteration of the most anterior part of the cleft.

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AN OUTBREAK OF TOXIC JAUNDICE DUE TO TETRACHLOR- ETHANE POISONING.

A NEW TYPE AMONGST AEROPLANE WORKERS.¹

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In September and October of 1914 the occurrence of several cases of illness associated with jaundice was noticed at the Hendon Aeroplane Factory. Cases of a similar nature were later observed at other aeroplane and seaplane factories. The outbreak of war naturally caused greatly increased activity in these factories, and the workers were employed overtime, so that any toxic influences to which they might be exposed in their work would be greatly increased.

My first acquaintance with the subject of my paper was on Nov. 5th, 1914, at my out-patient department at St. Mary's Hospital. The case was as follows.

CASE 1.—The patient was a man aged 36. The history of his case was that he had been employed at the Hendon Aeroplane Factory since August 8th. On Oct. 24th patient felt ill; he had nausea and retching in the morning, some slight pain in upper abdomen, and jaundice. He gave up work. His symptoms increased in severity. At my examination there was marked jaundice present; the patient appeared seriously ill. Pulse 96; temperature 99.5° F. Liver felt about 1 inch below right subcostal border in right nipple line on inspiration. No abdominal tenderness was present; no anæmia. Patient said the stools were pale and urine high-coloured. There was no history or evidence of syphilis or alcoholism. The tongue was furred and dry. Patient said he thought his illness was due to some condition associated with his work because ten other workers were affected similarly. On inquiry he stated that aeroplane "dope" was used in the factory, and he thought this was composed of "collodion, chloroform, ether, and acetone." He said that men who did not use the dope also suffered from the illness, but several of those who were using the dope had been taken ill. A diagnosis of toxic jaundice was made, and it was thought probable that some constituent of the dope was the cause of patient's illness. I did not see the patient again, but I heard that on Nov. 14th he was admitted to the Middlesex Hospital and died there on the 26th.

The case was referred to Mr. Luxmore Drew, H.M. coroner, and he after careful consideration decided that a post-mortem examination should be held. This was made by Dr. Spilsbury, who found a shrunken liver markedly bile-stained. Dr. T. M. Legge, Medical Inspector of Factories, Home Office, also investigated the case, and it was thought that the condition of the liver might be connected with the action of some poison to which the deceased was exposed during life.

A number of animal experiments were conducted by me relating to the possible toxic action of the constituents of the dopes used at the aeroplane factory, and it was clearly demonstrated that one of the constituents—viz., tetrachlorethane—was a powerful liver and kidney poison causing fatty degeneration of the cells of these organs.

Careful investigations were made by Dr. Legge and myself into the health of other employees at the factory and into the conditions of work there.

All the facts were carefully placed before the learned coroner, Mr. Luxmore Drew, who made a most careful and painstaking inquiry into the case, and as a result the jury found that death was due to degeneration of the liver caused by tetrachlorethane present in the cellulose varnish or dope used by deceased and to the vapours of which he was exposed during life.

¹ A paper read before the Medical Society of London on March 1st, 1915.

A number of other cases have been carefully examined by me, thus:—

CASE 2.—Male aged 48. Began work on August 10th, 1914; left work on Oct. 19th. He complained of constipation, sick headache, jaundice, nausea, and weakness, and some soreness of eyes. The urine was high-coloured; stools were pale. Patient returned to work on Nov. 9th, but gave up work again on the 23rd. On examination on Dec. 10th definite enlargement of liver was noticed; it was not tender. Slight jaundice was present but definite. Patient made a good recovery on being kept away from his work.

CASE 3.—Male aged 23. He commenced work on August 26th, 1914; gave up work on Nov. 30th. He complained of nausea, sickness in morning, and some slight pain in upper abdomen. He had been working near where doping was done. On examination on Dec. 3rd slight icterus was present; no anaemia; the liver was slightly enlarged; pulse 96. Patient made a good recovery on being kept away from his work.

CASE 4.—Male aged 53. He commenced work on August 31st, 1914; gave up work on Oct. 27th. He was weak and ill, with loss of appetite. He had dryness of throat. He was sick daily for 14 days. He was light-headed at night. He had definite jaundice, the urine being high-coloured and the stools pale. There was no abdominal pain. The liver was slightly enlarged. Slight but definite icterus was present; no anaemia. Patient made a good recovery.

CASE 5.—Male aged 44. He commenced work on August 22nd, 1914; gave up work on Nov. 30th. He complained of irritation of throat, loss of appetite, drowsiness, headache, and vomiting on two occasions before giving up work. Slight but definite jaundice was present on Dec. 10th. The liver was slightly enlarged; no tenderness over it. Patient made a good recovery.

CASE 6.—Male aged 47. He began work on Sept. 22nd, 1914; gave up work on Nov. 23rd. He did much overtime and used dope. He had loss of appetite, nausea, constipation, drowsiness, sickness in morning, and definite jaundice. The stools were pale and urine high coloured. On examination the liver was found slightly enlarged. Patient said he was a bilious subject. He made a good recovery.

CASE 7.—Male aged 28. He began work on August 13th, 1914; gave up work on Nov. 7th. He returned to work on Nov. 14th and gave up work again on the 21st. Patient had loss of appetite, nausea, vomiting at times, constipation, drowsiness at work, and dryness in throat. On examination definite jaundice was present. There was no abdominal tenderness. Slight enlargement of liver was present. Patient made a good recovery.

CASE 8.—Male aged 24. He commenced work on August 14th, 1914. He used the dope varnish. He very soon began to feel ill. He suffered from loss of appetite, nausea, constipation, headaches, and nasty taste in back of throat; was drowsy while at work; general weakness was complained of. He gave up work on Dec. 7th. On examination there was slight but definite jaundice. Temperature 99.2°F. The liver was somewhat enlarged, the lower border reaching three-quarters of an inch below right subcostal border in the right nipple line. There was no tenderness in abdomen. No signs of alcoholism or syphilis were present. He said the stools had been biscuit coloured. The patient made a good recovery.

CASE 9.—Male aged 49. He commenced work on Sept. 15th, 1914; at once began to feel ill. He suffered from drowsiness, constipation, and slight headache. The stools became pale in colour. There was no abdominal pain. Definite jaundice occurred on Oct. 7th, but cleared up before Nov. 2nd. He gave up work but resumed again on Nov. 2nd; the symptoms at once recurred. He now had sickness and the jaundice reappeared on Nov. 19th. He gave up work for the second time. The jaundice was now deeper than before, the stools were pale, and urine dark coloured. On examination on Dec. 17th there was still definite jaundice of slight depth. The liver was slightly enlarged, the lower border reaching half an inch below right subcostal border on inspiration. Patient improved slowly, but got well.

CASE 10.—Male aged 31. He commenced work on August 12th, 1914. He began to feel ill about Dec. 1st. He complained of loss of appetite, headache, peculiar taste

in mouth, drowsiness, nausea, and retching in morning. He was sick on Jan. 6th, 8th, and 9th, 1915. He became slightly jaundiced and gave up work on Jan. 9th. On examination on the 11th slight icterus was present. The liver was slightly enlarged, being felt about half an inch below subcostal border in right nipple line. Patient seemed in a marked toxic condition considering the slight amount of icterus present. He made a good recovery.

CASE 11.—Male aged 58. He began to work at Hendon on June 3rd, 1914. He was working close to where the dope was used. He left work on Sept. 21st. He was weak, felt drowsy, had no appetite, no energy, and the bowels were constipated. He had nausea, vomiting on one occasion. Jaundice developed on Sept. 14th. The patient became deeply jaundiced, with pale stools and high-coloured urine. He went to hospital on Oct. 2nd and was in there seven weeks. He developed ascites while in hospital and this increased. Edema of the legs also developed. The urine on examination by Dr. J. M. Bernstein showed a deposit of leucin. On Jan. 1st, 1915, paracentesis was performed by me and 22 pints of clear ascitic fluid were drawn off. The fluid gradually reaccumulated, and about three weeks later paracentesis was again performed by Dr. W. H. Ogle-Skan, who removed 21 pints of ascitic fluid. The fluid reaccumulated after this tapping, but Dr. Ogle-Skan tells me that absorption of the fluid has commenced and that patient is much improved in health and strength, and seems in a fair way to recovery. There was no history or evidence of alcoholism or syphilis in this case.

Other cases than those above described occurred at Hendon, but these are all on which a detailed clinical examination was made by me. In none of the above cases was there a history of alcoholic excess or of syphilis. In several of the cases the Wassermann test for syphilis was applied, but in every case the result was negative.

On Dec. 4th, 1914, I visited the Hendon aeroplane works. The smell of tetrachlorethane was very much in evidence, and at that time the ventilating arrangements by the plenum system were such that the heavy vapour of the dope was blown about the large room of the factory instead of being extracted. A reference to a plan on which were marked the places where affected persons worked showed that several cases of jaundice occurred at quite considerable distances—e.g., 30 or 40 yards—from where the dope varnishing was done. The more severe cases occurred in persons who were actually using the dope or were near where it was used. On questioning some of those working in the factory at the time of my visit I found that several workers complained of nausea, biliousness, drowsiness, constipation, loss of appetite, nasty taste at the back of the throat, headache, and general malaise, these symptoms being no doubt due to the dope vapour.

Cases of illness similar to those at Hendon have occurred in other factories where tetrachlorethane has been used. At the aeroplane factory at Crayford two severe cases occurred.

CASE 12.—Female aged 19. She commenced work in August, 1914. About Nov. 15th the patient complained of the smell of the dope, of discomfort in throat, and drowsiness. On Dec. 27th she became acutely ill with jaundice; there was vomiting and some abdominal pain. She became worse and on Jan. 2nd, 1915, vomited blood, was stuporose, and had convulsive twitchings. The stupor deepened into coma which lasted two days, when death supervened.

Necropsy.—The liver was hard and firm; it was very yellow and showed marked congestion; weight 34½ oz. The kidneys showed marked yellow staining of the cortex, the pyramids being intensely congested. The medulla was yellow and congested. The kidneys weighed each 5 oz. The heart weighed 7½ oz. The muscle showed yellow staining; some pink staining of endocardium. Numerous petechiae were present over surface of left ventricle. The small intestine showed intense petechial hæmorrhage over

the surface. There was marked congestion of the small intestine. The spleen weighed 8 oz.; it was hard and firm. Microscopical examination of the liver showed extensive necrosis, and in the kidney fatty degeneration was present.

CASE 13.—Female aged 17. She was working in the aeroplane factory for 4 months. On Jan. 14th, 1915, she felt ill; complained of discomfort in throat and general weakness. On the 28th she gave up work. She complained of nausea, sickness, and constipation. Jaundice occurred at this date. Patient was examined on Feb. 25th. There were intense jaundice, stupor, and delirium. The liver could not be felt. Spleen could not be felt. There was some dulness in flanks, which became resonant when patient rolled on to side. The urine contained much bile and a trace of albumin; many epithelial and granular casts were present. Patient became worse, passing into coma, and death occurred on Feb. 28th.

A fatal case occurred at the Seaplane Works, Rochester.

CASE 14.—Female aged 34. She commenced work in September, 1914. She worked overtime. On Dec. 7th she complained of feeling of illness and loss of appetite. On the 21st she gave up work. She was then jaundiced and complained of biliousness; she had abdominal discomfort, vomiting, and headache; constipation was present. On the 23rd she was dazed and confused; could not understand questions. On the 24th there was more severe abdominal pain and very deep jaundice. On the 25th she became drowsy, very little urine being passed. Delirium occurred on the 27th, and patient passed into coma, death occurring on Jan. 1st, 1915.

Necropsy.—The liver was shrunken; weight 20 oz. It was hard and firm. There was intense yellow staining. Gall-bladder was normal. The small intestine and mesentery showed marked congestion. The kidneys showed yellow staining of cortex and intense congestion of pyramids. Microscopical examination showed necrosis and degeneration of the liver cells, and fatty degeneration of the cells of the kidney.

Symptoms.

The following is a general résumé of the symptoms of tetrachlorethane poisoning. For some days the patients complain of general malaise, drowsiness while at work, loss of appetite, nausea, retching in the morning, unpleasant taste in the throat, constipation usually, and headache. Abdominal discomfort is present in some cases. After indefinite symptoms of this kind, lasting several days or even weeks, definite jaundice develops, and this is associated with pale stools and bilious urine. Vomiting is now likely to become more marked. The patient may become mentally confused, stuporose, or delirious. In acute cases hæmatemesis or convulsions may occur. Coma supervenes and death results. In the toxic stage of the disease purpuric rash and hæmorrhages may occur. Suppression of urine also occurs towards the end.

If the patient is removed from the influence of the poison in the early stages of the illness the symptoms clear up, but it is some weeks before the jaundice becomes completely free, even if it is only slightly marked. In cases with deep jaundice the prognosis is bad and recovery is unlikely. In one very interesting case (No. 11, Hendon Series) the patient recovered from the acute symptoms of a rather severe attack, but afterwards signs of contraction of the liver with portal obstruction developed, marked ascites resulting. It is interesting to record that after two operations of paracentesis the patient is making a good recovery.

In the early stages of the illness the liver appears to be slightly enlarged, no abdominal tenderness being present. Later the liver diminishes in size. The urine contains in the late stages of a severe

course much bile, a small amount of albumin and numerous casts, epithelial and granular casts predominating. No leucin and tyrosin crystals have been found by me in the unconcentrated urine, but as I have only had an opportunity of examining the urine in one acute case shortly before death I cannot speak as to the frequency of occurrence of leucin and tyrosin crystals. No acetone or diacetic acid has been found in the urines examined.

Interesting clinical features of the action of tetrachlorethane on the liver in the case of the aeroplane workers in this country are: (1) The insidious onset of the symptoms. (2) The comparatively long duration of the acute stage when marked jaundice has supervened, thus distinguishing the cases from acute yellow atrophy of the liver. (3) The absence of marked pyrexia, thus distinguishing the cases from infectious jaundice (Weil's disease). (4) The absence of anæmia, thus distinguishing the cases from poisoning by poisons which cause marked blood destruction—e.g., arseniuretted hydrogen, &c. (5) The marked depth of the jaundice, which is much deeper than is usually seen in cases of delayed chloroform poisoning.

There seems to be a marked variation in the susceptibility of certain persons to the poison, and this corresponds to the varying susceptibility of patients to other liver poisons—e.g., chloroform as described by Dr. L. G. Guthrie.

The jaundice appears to be of the toxæmic type, or hæmohepatogenous jaundice of Rolleston, and the exact type of the symptoms appears to be distinguishable from those of previously described liver poisons. There is no doubt that the question of dosage plays a very important part in the type of symptoms and in the incidence-rate of the illness. Thus the body is able to deal with very small amounts of the poison. When the quantity of poison absorbed becomes greater than the amount which can be dealt with, then symptoms result, and these will be progressive unless the patient is removed from the influence of the poison. The effect of increased dosage in causing illness is well shown by the effects of overtime and the increase in the quantity of dope varnish used in causing illness, whereas under previous conditions no harm resulted to the health of the workers.

It is interesting to record that on May 13th, 1914, a report was issued by Dr. Heffter and Dr. Kraus on Industrial Poisoning by Tetrachlorethane. In Germany the dope used contained a much higher percentage of tetrachlorethane than the English varnishes. As a result of this two types of symptoms resulted: (1) In one type of case gastro-intestinal and hepatic occurred as in the English cases; (2) in the other type of case nervous symptoms predominated, the patients suffering from tremors, headache, pains in limbs, numbness, pins and needles of extremities, loss of knee-jerks, and excessive sweating. In the German investigations some experiments on animals were carried out with a view to showing the anæsthetic action of the drug, but no post-mortem examination was made on the animals treated, and no direct proof was afforded of the poisonous action of tetrachlorethane on the liver.

Treatment.

Prevention of poisoning by the vapour of tetrachlorethane is of much greater importance than the treatment of patients suffering from this intoxication. Effective measures have been instituted in all factories where tetrachlorethane is used whereby

the heavy vapour is removed by powerful extraction fans, which remove the vapour at a low level and rapidly withdraw it from the workers. The Home Office have taken prompt action in the issuing of warning instructions, and in ensuring the provision of satisfactory measures for removal as far as possible of any danger to workers from the vapour of the dope used.

The treatment of patients suffering from toxic jaundice due to "dope vapour" consists firstly in their removal from all influence of the poison. Rest, light diet containing a much reduced amount of protein, saline aperients, and general hygienic measures are all that are necessary in mild cases. It is important that a patient should not be allowed to return to his work for a long period, at least a month elapsing after the jaundice has quite cleared up. Resumption of work should not be permitted unless the methods of removal of tetrachlorethane vapour in the factory where the patient is employed are effective.

Toxicological Aspects.

In considering the Hendon cases the first question that arose was, Were the symptoms due to some natural disease such as catarrhal jaundice, acute yellow atrophy, or jaundice of an infectious type; or were they due to some poison which had a special action on the liver? A careful review of the cases indicated that the symptoms were not consistent with natural disease, but were indicative of some poison acting on the liver.

The conditions obtaining at the aeroplane factories rendered it extremely probable that the "dope" vapour which contaminated the air to which the workers were exposed was responsible for the outbreak of illness. Also the conditions of work showed on investigating the individual cases that those workers who had been most exposed to dope vapour were most likely to suffer from illness, and speaking broadly the severity of the illness corresponded to the extent to which the patient had been exposed to dope vapour.

Dope or Cellulose Varnish.

This is a solution of acetate of cellulose in a mixture of benzene, acetone, methylated spirit, and tetrachlorethane. The proportions of the constituents vary with different types of varnish. The dope is a viscid, colourless liquid smelling something like chloroform. If applied to calico it forms on drying a firm, airtight and waterproof coating. Several coats of dope are given to the calico stretched on the framework of the aeroplane wings. The evaporation of the dope does not lead to a separation of its volatile constituents. A vapour comes off which appears to be a mixture of the volatile constituents of the dope. The vapour density of this was found to be 1.91 times that of air. If dope is distilled the bulk of the liquid distils over from 63° to 80° C., although the boiling point of tetrachlorethane is 147° C.

It is necessary for the drying to take place in a warm chamber. It appears that tetrachlorethane is a valuable constituent of the dope, since there is difficulty in getting such a good firm coating with a cellulose varnish in which tetrachlorethane is not present.

Experiments were instituted to test each of the constituents of the dope and the dope itself as regards the toxic action of their vapour on the liver.

For each experiment a large glass chamber (dessicator) was used. In the bottom of this were placed daily 10 c.c.

of the liquid to be tested. A perforated zinc platform was stretched across the middle of the chamber—i.e., half way up. On this were placed the animals to be experimented upon. The top of the chamber was covered with a perforated zinc roof. Rats were selected as the most suitable animals. The animals were kept in the glass chamber for eight hours a day for a week.

The liquids tested were dope, tetrachlorethane, acetone, benzene, and methylated spirit respectively. Two rats were placed in each chamber, five experiments being carried out together.

The rats thus exposed to dope vapour and tetrachlorethane vapour became very drowsy and slept all day. After removal from the chamber they remained drowsy for some little time, and on some occasions they were quite ataxic in gait, falling over on to their sides. After an hour or more usually they fed and became active. These animals did not gain in weight during the week's treatment.

In the experiments with acetone, benzene, and methylated spirit the animals were drowsy while exposed to the respective vapours, but on removal from it they immediately became lively and fed well. No ataxic symptoms were observed. All these animals gained markedly in weight during the week.

After seven days' treatment the animals were killed, and post-mortem examinations were made on them by Dr. Spilsbury and myself. The tetrachlorethane rats showed marked changes in the liver to the naked eye, there being fatty degeneration and bile-staining present. The "dope" rats showed similar changes but less marked. The rats exposed to the vapour of benzene, acetone, and methylated spirit showed no changes in the liver to the naked eye.

Careful microscopical examination of the organs showed marked fatty degeneration and cloudy swelling in the liver and kidneys of rats exposed to dope vapour and tetrachlorethane vapour, but no abnormal change in the animals exposed to the other vapours. Rats were also exposed to the action of dope vapour and tetrachlorethane vapour for five weeks. Marked diminution in size in the liver occurred in each case. The liver and kidneys were pale on section. They showed cloudy swelling and fatty degeneration.

The above experiments showed conclusively that tetrachlorethane is a powerful liver poison, and also they show that dope vapour is a liver poison, and that the poisonous property of dope vapour is due to tetrachlorethane being present in it.

In 1909 I made several experiments with tetrachlorethane on cats and rats in order to determine the anæsthetic effect of the drug. The vapour was found to be a powerful anæsthetic, but after removal from the vapour it was a long time before the animal recovered from the effects, sometimes 24 hours or more being required. It was obvious that tetrachlorethane was much more poisonous than chloroform as regards its anæsthetic effects.

About this time experiments were carried out by Dr. Veley, F.R.S., in the Physiological Laboratory of the University of London, and these showed that, weight for weight, tetrachlorethane was 2.8 times as powerful a tissue poison as chloroform.²



Tetrachlorethane is a colourless liquid,



Its boiling point is 147° and specific gravity 1.614. It has a smell like that of chloroform. It is not inflammable. It is known as acetylene tetrachloride and by the trade name of "cellon." It is used largely owing to its excellent solvent properties for resins, acetate of cellulose, &c.

There is no doubt that this compound is a powerful poison to the liver and kidneys, and that it is also a powerful narcotic poison. Every care should be taken in the use of tetrachlorethane to prevent as far as possible inhalation of the vapour.

Welbeck-street, W.

² Proceedings of the Royal Society, Series B, vol. lxxxii., 1910.

SURGICAL NOTES ON SERIOUS HEAD INJURIES.

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THE following cases may be of some surgical interest as illustrating the large amount of injury sustained by the bony skull and underlying brain tissues; also the enormous amount of brain injury and destruction which can take place, and yet the patient may recover to an almost normal condition of life and intelligence, and in a comparatively short space of time. In this hospital one has had the opportunity of seeing a very large number of head injuries, the results of rifle and shrapnel bullets, and the procedure which I invariably adopted was that of carrying out the minimum amount of surgical interference compatible with the injuries, and the undermentioned cases tend to illustrate that point. In those cases where the bullet was deeply lodged in the brain substance it was considered inadvisable to search for it, since the further laceration of the tissues engendered by the process would be more injurious to the patient than the foreign body itself. Before proceeding to operate the head was entirely shaved, under the anæsthetic, then thoroughly cleansed with ether soap, then washed with spirit, and finally painted with iodine. I noticed that all these cases took the anæsthetic remarkably well, never showing any bad after-effects—viz., sickness, &c. The anæsthetic usually employed was CHCl_3 or CHCl_3 and ether.

CASE 1.—Private, 2nd Dublin Fusiliers. Compound comminuted fracture of skull from shrapnel bullet; septic, large wound situate on vertex of the skull just behind the Rolandic area. On admission on Nov. 22nd, 1914, the patient was very bad, speechless; rapidly became worse and more and more comatose; pulse 48; temperature 99.8°F ., the breathing becoming stertorous; face swollen and puffy; no paralysis.

Operation shortly after admission. A large flap was turned down, when it was seen that the vertex of the skull for an area of about 5 to 6 inches was smashed in, being reduced to a number of small fragments, one of such being driven into and blocking the superior longitudinal sinus. The dura and underlying brain tissue were very considerably damaged. The fragmented bone was removed and the edges of the bone clipped away. The superior longitudinal sinus was plugged, the dura and lacerated brain attended to, scalp wound sutured and drain inserted. Iodine was then applied to the scalp and the wound dressed with gauze soaked in 1 in 40 carbolic.

Nov. 23rd: Patient very drowsy; pulse 80; temperature 100° ; answers when spoken to, but understands very little; face very swollen. 27th: Temperature 98° ; pulse 116; dressing quite clean. Plug removed from superior longitudinal sinus, which was quite sweet. Evening temperature 102° ; pulse 124. 28th: Temperature 102.2° ; pulse 120. 30th: Wound fairly clean; speaks and fully understands what is said to him, &c.—viz., mental condition normal. Temperature 99° ; pulse 104; face still swollen. Dec. 1st: Since operation both legs have gradually become paralysed and slightly rigid, with rather exaggerated knee-jerks. The right arm and hand have also gradually become paralysed, commencing from about the fourth day following the operation. Left arm normal. Incontinence of urine noted to-day. Temperature 99° ; pulse 112. 2nd: Patient able to open and shut right hand. Temperature normal; pulse 120. 8th: Wound moderately clean. Able to move right hand normally, but not arm; legs still paralysed; complains of cramp-like pains in both legs. 9th: Face much less swollen; wound progressing satisfactorily. Can move right arm very

slightly. Temperature 97.4° ; pulse 84. 10th: Patient able to move arm better, though very slightly. 13th: Wound satisfactory. The patient is able to move right arm almost normally; moves both legs very slightly for the first time; incontinence ceased. Temperature and pulse normal. 16th: Still slight movement of legs noticeable and much less pain, otherwise condition excellent; mental condition normal. 24th: Patient complains of no pain in his legs, and is able to move the left leg up and down very slowly, and only able to move the right leg down. General condition excellent. Evacuated to hospital ship.

CASE 2.—Private, 2nd Coldstream Guards. Compound comminuted fracture of the skull from rifle bullet, the entrance and exit wounds being about 4 inches apart. The entrance wound was situate slightly anterior to and below the parietal eminence of the left parietal bone, and the exit wound near the posterior superior angle of that bone; both wounds septic. The patient was aphasic on admission on Oct. 25th, 1914—in fact, the only word he could utter to anything that was asked him being "Yes"; also right hemiplegia.

Operation shortly after admission, when it was found that the greater portion of the left parietal bone, and the adjoining portions of the left occipital and frontal bones were fragmented. The dura and underlying brain tissue were considerably damaged. The parietal bone on the opposite side was loose. All the loose fragments and spicules of bone were removed; the dura and underlying damaged brain tissue were carefully attended to, all pressure being relieved. The scalp was sutured and the wound drained.

Oct. 26th: Patient looking well. Still could only utter the word "Yes." Was very sensible; evidently knew what was said to him, but could not answer; he apparently knew what the answer should be—aphasia. Hemiplegia; retention of urine, followed by incontinence. Towards evening he was dull and sleepy. Wound dressed with alcohol and looked very well; large amount of serous exudation. 29th: General condition much improved; patient much more alert. 31st: Wound still slightly septic, but healed in places. A small amount of brain substance was noticed bulging through the wound in the region of drainage. Treated with iodine and alcoholic dressings. Nov. 2nd: It was noticed that the patient on being asked questions would still answer "Yes," but was evidently aware that this was the wrong answer, since he promptly became irritable and slapped his chest. If the right answer was suggested to him he immediately became quiet and nodded his head with approval. 10th: Hernia cerebri practically disappeared; slight serous discharge; general condition good. Temperature and pulse normal; bladder symptoms disappeared. 13th: Slight movement noticed in the right lower limb. He is now able to speak a few words. Would frequently use the wrong word, but after some little thought would invariably be able to supply the correct word. The words are very slow and deliberate. Mental attitude happy and genial. 15th: General condition still improving; speech improving; can read the daily paper a little. Right lower limb is becoming much stronger; still slight discharge from wound. 17th: Wound clean, no discharge. Patient now began to move right arm slightly; movements of lower limb more pronounced; speech improving. 20th: Right arm movements are much stronger, and by placing the arm in a certain position on a pillow or support at his side he can flex it from the elbow. 24th: Wound healed. Movements of the right arm, hand, and fingers are much stronger, but that of the thumb is somewhat behind. He can now read, talk, and walk. Was evacuated to hospital ship.

CHCl_3 anæsthesia was administered, which the patient took remarkably well, and there was no after sickness. This was a very remarkable and interesting case to watch. From the day following the operation one noticed the intelligent look in his face on being questioned or on approaching his bed, although he could only utter one word, which after a short time he knew to be the wrong word; also to follow the various centres gradually resume their normal functions again.

CASE 3.—Private, Irish Guards. Compound comminuted fracture of the skull from rifle bullet. Admitted on Nov. 19th, 1914, in a semi-conscious condition, with an entrance and

exit wound. The entrance wound was situate at a point about the centre of the left eyebrow and about a quarter of an inch above, and the exit wound through the temporal muscle above the left ear. Marked œdema of both eyelids; left corneal hæmorrhage; left facial paralysis; no further paralysis. Temperature 101.4° F.; pulse 88; wound somewhat septic; very restless and irritable and in much pain.

Operation on Nov. 20th; anæsthetic, ether. A semicircular incision was made joining the entrance and exit wounds; flap turned down. It was found that the outer portion of the frontal bone and the orbital plate of that bone were fragmented, and a fissure extended through the temporal bone from the point of exit of the bullet down to the zygoma. All fragments of bone were removed, the temporal muscle was repaired, and the wound cleaned up and closed; a tube for drainage was inserted. Temperature 101°; pulse 76.

Nov. 21st: Temperature 103.4°; pulse 96. Wound looked fairly clean; one stitch was removed. 22nd: Temperature 102°; pulse 74. 23rd: Temperature 101.6°; pulse 78. Wound dressed; a small exudate of pus was noticed; tube removed. Wound flushed out with iodine solution; a gauze drain inserted. 24th: Temperature 100°; pulse 78. Wound septic; fomentations four-hourly. 27th: Temperature 100°; pulse 70. Wound much cleaner; discharge less; general condition improved. 29th: Much pain over left upper eyelid and eyebrow; eyelid was very swollen and inflamed; more discharge from entrance wound. Temperature 99°; pulse 70. 30th: Eyelid still about the same.

Dec. 2nd: Under CHCl₃ an incision was made into the eyelid; only serum escaped. A number of unhealthy granulations at both entrance and exit wounds were curetted away with a sharp spoon; wounds swabbed out with tincture of iodine and gauze drain inserted. Temperature 98°; pulse 70. 3rd: General condition much improved; eyelid much less distended and inflamed; no pain. Temperature 98°; pulse 70. 4th: Discharge very slight; no pain. From this time onward the patient uninterruptedly progressed, and was discharged to hospital ship on the 13th inst. with wounds practically healed and no evidence of facial paralysis.

CASE 4.—Colonel, R.F.A., admitted on Oct. 23rd, 1914, with a compound comminuted fracture of the right parietal bone and hernia cerebri; there was a hole in the parietal bone about the size of a shilling piece; left hemiplegia; semi-conscious. Temperature 99.8° F.; pulse 60. At operation the wound was opened up; all fragments of loose bone were removed, the bony opening slightly enlarged, and pressure relieved. The wound was closed and gauze drain inserted. 26th: Left leg moves fairly well; still paralysis of face and arm. Temperature and pulse normal. From this date to Nov. 19th progress was very satisfactory, temperature and pulse remaining normal. Was seen by Colonel Makins, and later by Colonel Sargeant, who both expressed themselves as very satisfied. Nov. 19th: Scalp wound healed; no hernia cerebri; partial paralysis of left arm and very slightly indeed of left side of face; leg completely recovered. Can raise left arm a little from the shoulder, unable to flex elbow or wrist, has slight grip with the fingers. Mental condition unimpaired; able to walk about ward with a little help. Discharged to hospital ship.

CASE 5.—Corporal, Seaforth Highlanders. Compound comminuted fracture of skull from rifle bullet. Entrance and exit wounds, both septic. The entry wound was quite small and situate in the frontal bone about 3 inches vertically above the inner canthus of the right eye. The exit wound was a large gaping hole in the temporal region about the size of a half-crown piece; this wound was situate about $\frac{1}{2}$ inch to the left of the left eye and lying both above and below that level and piercing both the frontal and malar bones. Brain matter could be seen oozing from both wounds, and especially the exit wound, and an instrument could be passed from one wound to the other without feeling any solid brain matter. Temperature 101° F.; pulse 110; left eyeball collapsed.

Operation a few hours after admission (Nov. 9th, 1914). The two wounds were joined together by a semicircular incision, and it was found that the intervening bone was shattered. All the fragmented bone was removed, which included the greater portion of the frontal bone, including the supraorbital plate, a portion of the malar and the temporal bones. The lacerated brain tissue was attended

to, the wound stitched up, the exit hole being left for drainage. The collapsed eyeball was left for the time. Wound dressed with iodine and alcohol.

Nov. 10th: This morning the patient was quite conscious; complains of very little pain; good deal of oozing of soft brain tissue. Temperature 103°; pulse 126. On visiting the wards about midday the junior surgeon was greatly surprised to see the patient reading the daily paper. 11th: Patient somewhat improved, but drowsy. Temperature 101°; pulse 100. 12th: Patient much more somnolent and was with difficulty aroused to take nourishment. Temperature 100° (evening 103°); pulse 100. 13th: Temperature 104°; pulse 94. 14th: Patient died.

This case is quoted as illustrating an enormous amount of brain and bony destruction which took place and the general condition of the patient for the succeeding five days, which was much more satisfactory than would have been thought possible.

CASE 6.—Private, R.E., admitted on Nov. 16th, 1914, with a compound comminuted fracture of the skull, septic, caused by a shrapnel bullet. The entry wound was situated at a point about 3 inches vertically above the external auditory meatus on the left side and the exit wound at a point over the posterior border of the right parietal bone about the middle. Entry wound in bone was about the size of a two-shilling piece and the exit wound was rather larger. The patient was delirious and talkative; did not answer questions. No paralysis; knee-jerks exaggerated; Babinski's sign on both sides; no ankle clonus; tended to draw legs up; abdomen retracted; dermatographia. Pupils equal and contracted, reacted to light; ecchymosis of left eye. Temperature 102.2° F.; pulse 110.

Nov. 17th: Operated on; a semicircular incision was made extending from the region of the entrance to the exit wound. A fissured fracture was seen extending between the two openings and others radiating therefrom. A number of loose pieces of bone and spicules were removed, and a bony fragment 2 by 1 inches, which was partly embedded in the brain substance, was extracted. The dura and lacerated brain were attended to and the wound sutured and drained. Temperature 101.8° (evening 98.6°). 18th: Still delirious. Temperature—18th, 98.6° (evening 101°); 19th, 99° (evening 100°); 20th, 99.2° (evening 101°); 21st, 100° (evening 104.4°). 21st: Patient died.

The notes on this case are mentioned as interesting in point of view of the symptoms arising from the injury.

CASE 7.—Lieutenant, S. Wales Borderers. Admitted on Nov. 1st, 1914, with two bullet wounds situate over the region of the left parietal and occipital bones, slightly above the level of the external occipital protuberance. The two wounds, the entrance and exit wounds, were about 1½ inches apart; both were small and quite clean. Very little evidence of bleeding; a certain amount of œdema of the scalp. The patient was very irritable and noisy. Temperature normal; pulse 84. Fracture? (it is impossible to determine this definitely owing to the œdema of the scalp). General treatment adopted.

Nov. 2nd: Patient's general condition the same; still irritable and restless; œdema of the scalp about the same; temperature normal; pulse 84. 3rd: Patient vomited badly this evening and was afterwards found to be entirely paralysed on the right side and the left side of the face slightly also. Consultation was held and it was decided not to operate; somewhat aphasic. Temperature normal; pulse 96. 4th: Consultation with Sir Wilmot Herringham; general treatment continued; on examination he discovered optic neuritis, more especially on the left. Temperature normal; pulse 96.

Nov. 5th: Patient worse, showing signs of compression; operated on. An area of scalp was turned down, including the wounds. Two bullet holes were seen in the skull and a fracture extending between them. The two openings were thrown into one, when it was found that the inner table was fractured for some distance around, the dura damaged, and the brain lacerated. The opening was considerably enlarged, all depressed and fractured bone removed, and the dura and lacerated brain attended to. A spicule of bone was also found wedged in the superior longitudinal sinus. This was removed and a good deal of hæmorrhage ensued, which was

controlled by plugging. After relieving all pressure the wound was sutured and drained.

Nov. 8th: The patient shows signs of improvement; paralysis, &c., still present. 10th: Plugging removed from superior longitudinal sinus; temperature and pulse normal. 13th: Morning temperature 100° F., evening 103°; not so well. 14th: Temperature (morning) 101·8°; signs of compression reappear. Under CHCl₃ again operated upon; opening in the skull further enlarged; opening in dura made more free, pressure relieved. 15th: Temperature 99°. Paralysis present only on right side; left half of face normal; aphasia (can say one or two words however). 17th: Scalp wound showed signs of sepsis; several stitches removed; carbolic fomentations four-hourly. Temperature 99·6°; pulse 70. 18th: There is a slight hernia cerebri, which is foul-smelling and septic. Temperature 103·2°; pulse 120. 19th: Hernia cerebri increasing; patient not so well, lying in a semi-conscious condition; only with difficulty aroused to take nourishment. Temperature 101·2°; pulse 108. 20th to 25th: Hernia cerebri still increasing; pulse and temperature varying very much. 26th: Hernia about size of a large orange; less septic; temperature 99·4°. 30th: General and mental condition much better; had a slight rigor this morning on the wound being dressed; understands all that is said, can smoke and enjoy a cigarette.

Dec. 4th: A great deal of fluid discharge, saturating pillow and sheets; this no doubt is issuing from the lateral ventricles. No sepsis; alcohol dressings. 5th: Consultation with Colonel Lister, who examined patient's eyes. He states: Right eye: slight swelling of right disc above and below about 1 + 1D, but measurement difficult as patient is unsteady; blurring of edges and veins full. Left eye: blurring of edge; fulness of veins; no swelling; slight evidence of optic neuritis. 5th to 9th: Temperature respectively 100·2°, 100·6°, 101·2°, 101·4°, and 102°. 9th: There has been a very considerable increase in the discharge of cerebral fluid during the last three days. It is noticed also that since the alcoholic dressings were instituted the temperature has gradually gone up and the patient has been much more restless; so changed to-night to carbolic fomentations (1 in 40). 10th: Temperature 99·6°; some improvement; not so restless. Dec. 13th: Patient much brighter and better. He cannot speak, but understands all that is said to him and takes more interest in his surroundings. With pencil and paper he makes an effort to write with his left hand. Hernia is receding, quite clean, is firmer and fairly smooth. 15th: Patient not so well. Temperature 102·6°; pulse 136, regular and weak; had a bilious attack. Seen by Colonel Sargeant and Dr. Holmes, who expressed their satisfaction of the case; advised treatment to continue; prognosis uncertain. 16th: Temperature 101°; pulse 118, stronger. Hernia still receding; no evidence of any discharge of cerebral fluid. Can move right leg slightly, and can turn himself in bed. 23rd: Patient was evacuated to hospital ship. Much better in himself; still had paralysis and aphasia; movement in right leg much more pronounced. Hernia cerebri has receded now to a position about half an inch above the level of the scalp. The convulsions on the surface have completely disappeared, giving an appearance of a smooth flat growth.

I have reported this case at some length as an interesting condition of hernia cerebri following operation.

I should like to express my indebtedness to Colonel Makins, Colonel Lister, Colonel Sargeant, and Major Hudson for their unvarying kindness and advice; and I especially wish to express my gratitude and appreciation to Captain Radley, my assistant surgeon, under whose care many of these cases were, and to Lieutenant W. M. S. Robinson, who also had charge of some of the cases, and who collaborated with me in issuing these reports.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—

This Fund has recently received a cheque for £500 from Sir John Ellerman, Bart., given as an annual subscription to be terminated a year or two after the war, the intention being to assist the hospitals over a period during which there is considerable fear of a material reduction in subscriptions and donations.

AN UNUSUAL RUPTURE OF THE MITRAL VALVE.

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AND

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(From Professor W. K. Hunter's wards, Glasgow Royal Infirmary.)

ON a few rare occasions rupture of a cardiac valve has been attributed to strain, and in such cases the valve may be healthy, although more probably there is some pre-existent disease. A diseased valve may rupture as a result of a strain, but more frequently there is no history of strain and the rupture is but an incident in the progress of the disease. In such cases there is an acute endocarditis of the malignant or ulcerative type affecting the valve, which in its progress causes the formation of an aneurysm on the valve, and this eventually gives way under the pressure of the circulating blood. The resulting incompetence and effect on the circulation are variable.

It seems to be generally assumed that infection of a valve in endocarditis takes place directly from the blood circulating through the heart, and that in simple endocarditis the vegetations are usually confined to the lines of contact of the cusps, whereas in the malignant form the endocarditis is characterised by, among other things, its tendency to affect parts of the valve other than the lines of contact. Further, malignant endocarditis has a tendency to spread to parts of the cardiac musculature, notably the posterior auricular wall and the chordæ tendineæ in mitral cases.

In an investigation into the pathology of cardiac arrhythmia, which one of us (A. M. K.) has been engaged upon for a number of years, a prominent feature of cases of endocarditis has been the marked inflammatory reaction present in the cardiac tissue at the bases of the inflamed valves, and this, striking inwards, involved the subjacent a.-v. node or bundle, producing a corresponding disturbance of the cardiac rhythm. The case herein recorded is one of malignant endocarditis, not valvular but mural, in which inflammatory reaction in the cardiac tissue at the base of the mitral valve was so acute that necrosis occurred and the cusps were torn off from their attachments to the wall.

The patient was a moderately well-nourished although sparely built man of 61 years of age, who was brought into the Glasgow Royal Infirmary in an almost unconscious condition one night at 11.40, having been found in this condition on one of the city bridges about half an hour previously. No history of the man could be obtained at this time. The body surface generally was cold and pale; he could only be partially roused, and in answer to questions uttered only unintelligible grunts. There was no odour of alcohol or any other drug from the breath, and no evident paralysis could be found anywhere. There was an old operation scar in the right inguinal region, and other old scars on the left forearm and right thigh, but with the exception of two small bruises on the back of the right hand and on the front of the left tibia, there was no other evidence of recent injury. The pupils were medium in size, reacted normally to light, and the conjunctival reflex was present. The right conjunctiva was congested, and there was a little hæmorrhage into the left. The tendon reflexes were present, but the responses were sluggish. Urine had apparently been passed involuntarily, and the bladder was

found empty on catheterisation. There was no œdema anywhere. On being put to bed the patient assumed the dorsal decubitus position, and was somewhat restless, but at no time unmanageable. The pulse was regular but extremely feeble and soft, with a rate of about 78 per minute, although the beats were difficult to count. The superficial cardiac area extended to the right beyond the right sternal margin, and to the left a little external to the mid-clavicular line; upwards it reached the third rib. The cardiac sounds were extremely faint and difficult to hear in all the areas, and no murmur was elicited. The respirations numbered 32 per minute, and were shallow and mostly abdominal. The lungs were resonant all over, and the breath sounds vesicular, with some prolongation of expiration, and accompanied by occasional rhonchi. Nothing abnormal was detected in the abdomen, and neither the liver nor spleen was enlarged. Hot-water bottles were placed around the patient in bed, and by midnight he fell into a sound sleep, from which he never awoke. The pulse became more feeble and rapid, the beats being almost imperceptible, and the cardiac sounds became extremely distant and approximated, so that first and second sounds were indistinguishable one from the other. The respirations remained much about the same; the temperature never rose above 97° F., and gradually deepening coma ensued, from which the patient died at 9.10 on the following morning—eight and a half hours after admission.

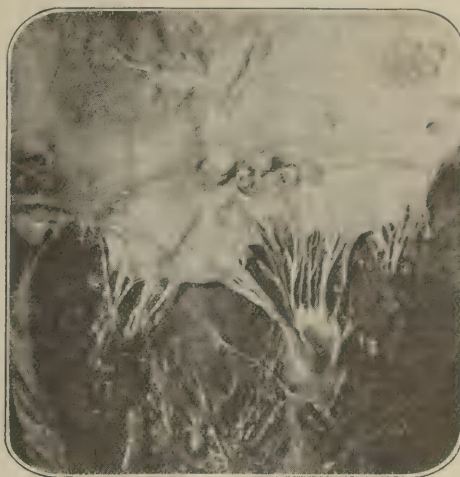
An interview with the man's relatives was obtained later, and from that it was ascertained that for many years he had been living apart from his wife in a common lodging-house, doing little work, but drinking heavily on the money allowed him by his family. No history of his present illness could be obtained and nothing further in his medical history beyond the fact that he had suffered from some urinary trouble.

At the necropsy dense adhesions were found in the abdomen, mostly in the right iliac region, but extending up to and over the surface of the liver. Just below the brim of the pelvis the old adhesions formed a particularly dense mass surrounding the vessels and ureter of the left side. Just above this mass there was irregularity, with slight aneurysmal dilatation of the common iliac artery. The mass produced a definite but not tight stricture of the ureter, and from here upwards the ureter was tortuous and much dilated, in places being about an inch in diameter. The pelvis of the left kidney was dilated, forming a hydronephrosis, and the kidney substance itself showed marked cloudy swelling, but not much atrophy. The right kidney showed cloudy swelling only. The bladder was hypertrophied and there was a number of raised patches apparently of some infection in the trigone. The liver showed fairly marked cloudy swelling and the spleen was soft and congested—of the septic type; the lungs were emphysematous and both bases were very œdematous, hypostatic congestion at the base of the right being very marked. There was slight œdema of the brain and meninges, with some chronic thickening of the pia arachnoid over the convexity, but there was nothing further of note to be made out except in the heart.

Examination of the heart revealed a "milk spot" on the front of the right ventricle and also some superficial strands of fibrosis along the courses of the coronary arteries, which were tortuous but not thickened. The tortuosity was rendered conspicuous by the diminished amount of fat that was present on the surface of the heart. The cardiac muscle showed brown atrophy and slight fibrosis. There was slight fibrous thickening with occasional very slight calcareous deposition along the line of attachment of the aortic valve, and extending downwards for about an inch there was diffuse superficial fibrosis of the endocardium of the left ventricle. At the base of the left posterior aortic cusp, in relation to the anterior mitral cusp, there was an area of calcification about the size of a pea, extending from the valve segment into the subjacent cardiac tissue. The aortic cusps showed nothing else abnormal, and the valve was competent. At the base of the mitral valve was a button-hole rupture, due to the cusps having been separated from the cardiac septum along their line of attachment. (Fig. 1.) The rupture was situated towards the right side of the valve, involving the junction between the two cusps, two-thirds of it being in the posterior cusp and one-third in the anterior cusp. The edges were somewhat ragged; its total length

was about three-quarters of an inch, and its greatest breadth about three-eighths of an inch. There was very slight patchy chronic thickening towards the edges of the mitral cusp in the neighbourhood of the rupture, but no evidence of acute endocarditis on the valve segments. Corresponding with this rupture was another in the cardiac septum immediately below, and parallel to, the auriculo-ventricular ring. This rupture also was about three-quarters of an inch long and extended about three-eighths of an inch deep; its edges were rough, and apparently it marked the site of attachment of the separated valve segments. There was no evidence of aneurysm having been present on the valve. The left auricle was much dilated, and on its posterior wall, about three-quarters of an inch directly above the posterior mitral cusp, there was a patch of ulcerative endocarditis (Fig. 1); it was about the size of a sixpenny piece, and the vegetations composing it were small and granular-looking. Midway

FIG. 1.



Shows the two patches of malignant endocarditis on the posterior auricular wall and the rupture in the mitral valve. Through this the breach in the cardiac septum, with its irregular margins, can be seen. Also shows one of the moderator bands and the fibrosis at the tips of the papillary muscles.

between this patch and the ruptured cusps was another patch on the wall of the auricle. It was very minute, however, showing only five or six vegetations. (Fig. 1.) The papillary muscles showed well-marked superficial fibrosis of their tips, and three moderator bands were present in the left ventricle. The right ventricle was much dilated, and the right auricle greatly so, but there was no apparent hypertrophy of any of the cardiac chambers.

Different portions of the heart were examined microscopically and they all showed slight brown atrophy of the cardiac muscle. One piece was taken from the cardiac septum to include the auricular and ventricular portions bordering the rupture. It was cut out at right angles to the rupture, across its centre, and extended from the surface inwards the full depth of the tear. On microscopical examination of this piece (Fig. 2) it was at once evident that the breach was due to acute inflammation of pyogenic origin involving this part of the septum. The tissues were congested and infiltrated with polymorphonuclear leucocytes in abundance. These were present in greatest numbers as a broad zone towards the ruptured surfaces and the surface of the septum. Superficially the cardiac tissue was necrotic and showed in places some fibrinous deposition. The acute inflammation and necrosis involved both auricular and ventricular portions of the septum, but was much more marked in the latter; it extended the whole depth of the rupture, but gradually faded off beyond its immediate neighbourhood. The cause of the inflammation was found to be streptococci, which were present in great numbers. They were in short chains and most abundant at the surfaces.

The lesion had all the appearances of a malignant endocarditis involving the left side of the cardiac septum just below the auriculo-ventricular ring, and in which ulceration

with scanty fibrin formation was the characteristic feature. It was apparent that the breach in the cardiac septum corresponded practically with the former site of attachment of the valve segments and along which mechanical separation of them had taken place. In this region fibrosis with slight calcification was also seen. The portion of posterior auricular wall taken in the neighbourhood of the endocarditic vegetations showed a marked polymorphonuclear leucocytic reaction just below the surface. A portion from a papillary muscle showed fibrosis at the tip and elsewhere, which towards the surface was infiltrated with inflammatory cells.

FIG. 2.



The lower portion of the cardiac septum bordering the rupture. Shows the necrotic surface with zone of leucocytic infiltration below. The upper surface is the lower margin of the breach in the cardiac septum and the left side is the surface of the ventricular septum. The upper left hand corner shows the remains of the attachment of the mitral valve. ($\times 90$.)

It is unfortunate that no recent history of the patient was obtainable, but from the naked-eye and microscopic examination of the heart it seems highly probable that the malignant endocarditis was of short duration. In all probability the source of the cardiac infection was the lesions in the bladder. We do not know whether the man had been exerting himself any more than by walking, but in any case the pathological process in the cardiac septum was sufficient to give rise to "spontaneous" separation of the cusps. It seems likely that owing to the large size of the rupture its occurrence would be associated with loss of consciousness due to the sudden upsetting of the circulation, and that death ensued nine hours later from cardiac failure.

But apart from the rupture there is another interesting, perhaps more important, feature of the case—viz., the occurrence of a characteristic malignant endocarditis involving the walls and not the valves of the heart. In this respect there is a similarity to a case observed by one of us (A. M. K.) a few years ago, which is quoted by Cowan.¹ This

¹ Diseases of the Heart, London, 1914.

was a case of septicæmia in which an abscess formed in the interventricular septum and reached the interior of the right ventricle immediately beneath the septal cusp of the tricuspid valve. The centre of this cusp became involved by direct infection, and a perforation measuring nearly a centimetre in diameter followed; the margins of the cusp were not affected by the endocarditis.

We are indebted to Professor Hunter for permission to publish the case, and to Professor J. H. Teacher for permission to investigate the heart.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

HEMORRHAGE AFTER DENTAL EXTRACTIONS.

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DURING the first half of last year I had an unusual number of cases of bleeding following tooth extraction. The most recent case was followed by death, and is, I think, worth recording.

The patient was a young married woman, aged 32, the mother of two children; she was tall but somewhat frail, and was the subject of some mitral regurgitation. She suffered from neuralgia, and as her mouth contained a number of stumps she was advised to have them removed. On the morning of June 19th, 1914, she came to see me because her gums were bleeding. I found that the blood issued from the socket of an incisor tooth which had been removed the day previously. The extractions were made about 6 P.M. on June 18th. The husband says that there was no bleeding at bedtime. At 6 A.M. on the 19th she found that her mouth was bleeding, and between 6 and 8 o'clock she lost quite a considerable quantity of blood. Between 9 and 10 A.M., when she visited me, I found a good deal of blood-clot, but bleeding soon stopped after pressure was applied. I saw her later in the day, when there was still no bleeding. She came to see me about 8 P.M., and was still all right. She took a motor-bus home, and then seemed to be in her usual health and spirits. At 1 A.M. on June 20th to her husband she appeared as usual. At 4 A.M. he awoke and found her with her face set. I was sent for and she was dead. I notified the coroner of her death and he decided to hold an inquest. A verdict of "Death from heart failure" was returned.

A few somewhat important points are to be gathered from this and other cases of the sort. 1. I am told that 40 per cent. of those who extract teeth are not on the Register. 2. Local anæsthesia is obtained by the injection of preparations containing powerful drugs. In the case quoted the preparation used was obtained from a firm of great repute. Most of these preparations contain cocaine and adrenalin, and it is very doubtful whether many of the operators know anything more of the action of these potent drugs than that they relieve pain and for a time check bleeding. 3. Many dentists think that they do their duty by a patient if they keep him under observation for about 15 minutes. Another patient had teeth extracted at 7 P.M., and there was so much bleeding hours after that

I was sent for. My assistant saw her at 4 A.M., and remained with her for half an hour. 4. There is not only danger from hæmorrhage, which may come on hours after the patient has left the dentist, but there is also the danger of absorption of a poisonous dose of cocaine. It should be added that the half dozen patients whom I have in mind were probably distributed amongst at least four different operators.

Earl Shilton, Hinckley.

AN INSTRUCTIVE CASE OF TUBERCULOUS PERITONITIS.

BY THOMAS BODLEY SCOTT, M.R.C.S. ENG.,
L.R.C.P. EDIN.

THE patient, a man aged 40, who had for some time had chronic tuberculous trouble in the chest, the left lung being in a fibroid condition, gradually developed general peritonitis. There was much pain, and tenderness on pressure. The temperature rose to 102.6° F. Dyspepsia, which was very acute, took the form of hyperacidity with occasional vomiting. In a few days a large quantity of ascitic fluid formed. There were no œdema in the legs, no jaundice, and no albuminuria, so the fluid was clearly the result of peritonitis only. On paracentesis about 2 gallons of fluid were withdrawn. This gave but temporary relief. In view of the patient's very grave condition laparotomy was advised as his only chance. To this he wisely consented. The operation was performed by Mr. Bernard Scott, of Bournemouth. He found acute peritonitis with tubercle manifest in every direction. The intestines were matted together and were in many places adherent to the anterior abdominal wall, so much so that any further paracentesis would have been very dangerous. After some trouble the adhesions were sufficiently broken down to allow of free drainage and evacuation of the ascitic fluid which had collected in pockets. The peritoneal cavity was exposed to the air for about 15 minutes; no saline injections were used. The wound was closed, no drainage-tubes being left. The patient made an uninterrupted recovery. All signs of peritonitis have gone. There are no swelling and no tenderness. The temperature has come down to 99°, and he is able to take outdoor exercise with comfort. During his convalescence from the operation he was lying out of doors in a balcony all day. The dyspepsia has gone, and the action of the bowels is normal.

This is the third case of general tuberculous peritonitis in the last 20 years that I have seen cured by laparotomy. The explanation is very difficult, but accumulating evidence shows, I think, that all such cases should have the opportunity of taking the benefit of this safe and simple operation.

Bournemouth.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received from the estate of the late Mr. Edward Baker a sum of £4788 4s. 1d., of which £2640 are allotted to the rebuilding fund and the remainder to the general fund.—The late Mr. Birkenhead Clegg, of Backford, Cheshire, bequeathed by will £500 to the Chester General Infirmary, £300 to the Wigan Infirmary, and £200 to the Convalescent Home at Parkgate.—Under the will of the late Mr. William Stirling, of Muir-of-Ord, Ross-shire, and London, the testator left £300 each to the Northern Infirmary, Inverness, and the Ross Memorial Hospital, Dingwall, and £200 to the Cumberland Infirmary, Carlisle.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

Discussion on the Epidemiology of Cerebro-spinal Meningitis.

Professor Sir WILLIAM OSLER in opening a special discussion on this subject on Feb. 26th hoped that the debate would perhaps allay the growing apprehension on the part of the public and would stimulate scientific interest in the problems in one of the most remarkable of epidemics. He dwelt with four points. First, the epidemic prevalence during the nineteenth and the early part of the present centuries. Hirsch divided the epidemics of the last century into four great periods. A fifth began early in the "nineties," characterised by a sharp outbreak in New York in 1893, during which year also there was an epidemic in the State of Maryland localised to certain mining towns. In 1897-98 the disease reappeared, and there was an outbreak in Baltimore and severe epidemics in Germany and Italy. For the past 20 years there had been a wider prevalence of the disease than at any period since our first knowledge of it in 1805. The best indication of this progress might be had from the striking increase in the literature as shown in the "Index Medicus." New York suffered severely in 1904-05, Silesia in 1905-07, France in 1908-10, and the South-Western States of America in 1911. During this century the feature of special interest had been the increasing prevalence of the disease in the United Kingdom, which could scarcely be said to have suffered in the nineteenth. The first outbreaks of importance appeared in Ireland and Scotland in 1907-08. In Glasgow there were 1238 cases with 838 deaths, and in Belfast 705 cases with 548 deaths. For the past three years there had been a steady increase in the number of cases notified, reaching 310 in 1914. This winter, with the concentration of soldiers in camps and the unusually bad weather, outbreaks had occurred in many places. The question had to be determined whether, as had been suggested, the disease had been imported with some of the overseas troops; but Professor Osler thought that as there had been an outbreak in 1913-14 in the West of England and with the increasing prevalence this could not be maintained. As usual, the morbidity rate was low in the community, but the mortality rate was high, ranging from 50 to 75 per cent. of the cases. As a killing disease cerebro-spinal fever was insignificant in comparison with pneumonia, with which as an epidemic it had many resemblances—the constant presence of sporadic cases; the occurrence of small foci in a single house, in a barrack, or in a gaol; the special prevalence of epidemics among soldiers; the seasonal relations; the mild grade of contagiousness; the transmission by carriers; and the variability of the germ. The second point he referred to was the variability of the meningococcus—a germ with specific immunity reactions, agglutination, complement deviation, and opsonisation. Like the pneumococcus, the germ presented several strains with marked biological differences, and he referred particularly to the parameningococcus, which, culturally indistinguishable, presented marked serological differences. The third point was the sources of infection, which had been very obscure until the discovery of the existence of sporadic cases of the disease and the presence of carriers. The sporadic form occurred not only as the "posterior-basic meningitis," as it is called, but it attacked not very infrequently young adults. It seemed probable that the meningococcus was a widely spread organism in all communities as a germ of low virulence. The most important of the studies in recent epidemics had been to show the wide prevalence of carriers, varying from 10 to 50 per cent. in the immediate entourage of a patient, and the existence of such individuals during epidemic prevalence who had themselves never been directly exposed. Healthy persons carrying the germs transmitted to others in the ordinary contact of intercourse, in the use of common eating utensils, in kissing, in the contact of soiled hands, and the contamination of food by carrier cooks. A measure of special susceptibility in the individual

must be assumed, and just as was the case with pneumonia only a very small percentage of carriers were attacked. The recurrence in cycles was very difficult to explain, but it was a character which the disease shared with many others. Possibly certain conditions favoured increased virulence, and an increased susceptibility on the part of the individual might be caused by depressing influences of overcrowding and bad weather. The sudden onset, the fulminant cases, the presence of the meningococcus in the blood favoured the view of a primary blood infection. Lastly he dealt with the question of serum-therapy, which had been remarkably successful in some outbreaks, as shown in the statistics of Flexner and Robb in the Belfast epidemic and in the recent outbreaks in the South-Western States of America. The treatment was directed towards the destruction of the organisms themselves in the meninges, acting by bacteriolysis and phagocytosis, at the same time neutralising the poisons. He referred to the technical difficulties in carrying out the treatment and to the existence of refractory, so-called fast, strains of the germ. As an outcome of recent studies at the Rockefeller Institute the use of a polyvalent serum was suggested, and it was satisfactory to know that steps had been taken for the manufacture of this on a large scale for use during the present outbreak.

Dr. J. C. G. LEDINGHAM, in reopening the adjourned discussion on March 5th, said: What I have got to say in regard to the Bacteriology of Epidemic Cerebro-spinal Meningitis is doubtless only too familiar to many of you here present, but it is perhaps well in a general discussion of this kind to restate briefly certain points in connexion with the biology and distribution of the meningococcus which have a distinct bearing on the epidemiology of the disease. The meningococcus of Weichselbaum is universally regarded as the essential specific cause of epidemic cerebro-spinal meningitis, as also of certain forms of sporadic meningitis. It belongs to a small group of Gram-negative diplococci, the only other important member of which is the gonococcus. In many relationships, and especially the serological relationships, it bears a close family resemblance to the gonococcus, and if the distribution of the gonococcus were other than it is, there is no doubt that the difficulties in differentiation, surmountable though they are, might be greatly increased. Records of cerebro-spinal meningitis as we know it are wanting before the year 1805, and the daring hypothesis has been put forward that the meningococcus may have arisen as a mutant form of the gonococcus, with its seat of predilection in the meninges instead of the genital tract. It would be idle, however, to speculate further on this point at present as research is hampered by our inability to communicate either cerebro-spinal meningitis or gonorrhoea as we know them to laboratory animals. The serological and other affinities that exist between the meningococcus and the gonococcus find an interesting parallel in those that exist between the bacillus which causes pseudo-tuberculosis in rodents and the bacillus of human plague. The meningococcus is a delicate short-lived organism, and requires for its successful isolation and for a variable time after isolation the presence of serum, ascitic fluid, or some such substance in the nutrient medium. Later it can grow without these additions, but it still retains certain properties which mark it off as an organism which cannot under any circumstances lead a saprophytic life outside the human body. These properties are its great susceptibility to (1) cold, and (2) to drying. It will not grow below 25° C., and cultures kept at room temperature very rapidly die out. If no precautions are taken against drying the organism dies out even at 37° C. in a few days, but if such precautions are taken it has been found possible to keep the organism alive for so long as six to ten months. The observations of various authors vary somewhat, and it is unnecessary to cite details, but all are agreed that the meningococcus is an organism which is notoriously susceptible to external influences of the kind mentioned. When found in the lumbar fluid of cases of meningitis the meningococcus is readily identified by its Gram-negative character and its frequent intracellular disposition. After isolation the growth is distinguished by its emulsibility in saline, its action on certain carbohydrates, and its behaviour towards an agglutinating serum. As organisms other than the meningococcus are only very rarely met with in fresh lumbar fluid samples from cerebro-spinal cases

some of these tests may legitimately be dispensed with, especially if work is pressing, but in the case of suspicious organisms isolated from the naso-pharynx of cases or carriers, identification tests have necessarily to be more strict in view of the fact that other Gram-negative diplococci, such as the micrococcus catarrhalis and the group of chromogenic diplococci, are liable to occur in this situation. The criteria employed for the identification of meningococci from the naso-pharynx have probably not always been of a uniformly strict character, and this fact has undoubtedly to be taken into consideration in appraising the percentages obtained by various workers who have searched for carriers either during the epidemic season or at epidemic-free periods. These points will no doubt be dealt with by other speakers who have recently had field experience in this matter. Here I desire to comment on the agglutination difficulties. It would be exceedingly desirable to have an agglutinating serum which would act with some uniformity against meningococcal strains of various origin. In hunting for carriers it would be invaluable, but so far the difficulties presented by the fact that a considerable number of strains are relatively inagglutinable have not been surmounted. A serum prepared by immunisation with one strain may agglutinate only a small proportion of other strains. For example, Elser and Huntton in America tested a monovalent serum against 65 strains with the result that 25 or 40 per cent. of them were not appreciably affected. Similar results have been got by Arkwright and other workers. On the other hand, some of these inagglutinable strains may have slight but definite absorptive powers and may when injected into animals produce sera which affect agglutinable strains, though remaining without action or with only slight action on the homologous organisms. It is possible, however, that these difficulties may yield to further research which the present outbreak will doubtless stimulate, but it has to be remembered that in the coccal group generally these serological difficulties due to apparent high specificity of the individual strain are constantly met with—e.g., in the case of the pneumococcus. The phenomenon is not confined to this group however, as very occasionally strains of *B. typhosus* are met with which are relatively inagglutinable but which are able to produce agglutinins for other strains. With regard to the distribution of the meningococcus, it has never been isolated from dust, air, or fomites generally; and, indeed, its short-lived character renders very remote the possibility of its transmission by such media. Apart from the actual case of the disease, the meningococcus is found in the naso-pharynx of a certain proportion of persons living in more or less contiguity with cases. This type of carrier will be dealt with by other speakers. Here I should like to refer to its occasional presence in the naso-pharynx of healthy persons at epidemic-free periods. In the book on the carrier problem by Arkwright and myself¹ a list of observations on this point is found, and Sophian in his book² publishes a similar list. Some observers have found a small percentage of carriers in such populations, while others have found none, but the total number of cases examined has not been large. The only large series is that by Mayer and Waldmann (1910), who examined 9111 men in the Munich garrison at an epidemic-free period and found roughly 2 per cent. of carriers amongst them. In a recent paper in the *British Medical Journal* Sir William Osler quoted these figures and added a point of exclamation, the inference to be drawn probably being that he (Sir William Osler) was inclined to subscribe to Mayer's sweeping generalisation from his figures—viz., that the meningococcus was a ubiquitous organism occurring in 2 per cent. of normal people. This question is, of course, a most important one. If one were to accept a generalisation of this kind it would amount to placing cerebro-spinal meningitis on the same plane as pneumonia where epidemiology does not come in—i.e., if we accept the current view that a person gets pneumonia by infection with a strain which has been growing saprophytically in his respiratory tract. Now it must be said that at the time some doubt was cast on these observations of Mayer by his own compatriots, and in a footnote to his paper Mayer refers to this feeling of scepticism. But probably the feeling was one rather of

¹ Ledingham and Arkwright: The Carrier Problem in Infectious Diseases. London: Edward Arnold, 1912.

² Sophian: Epidemic Cerebro-spinal Meningitis. London: Kimpton, 1913.

disagreement with his generalisation above referred to. In my view there is no reason to doubt the figures, but in appraising them one has to remember that the population examined was one in which cases had been occurring yearly. It is therefore not at all improbable that some of his carriers revealed at the meningitis-free period had either been chronic carriers for some months, while others had been infected by such carriers. As a matter of fact, Mayer admits that 4 out of 35 persons who were carriers during the meningitis season proved to be still harbouring the meningococcus at the meningitis-free period. The way in which one carrier gets surrounded by a zone of carriers has been very clearly demonstrated by Selter, whose observations are to be found in the book on the carrier problem. The presence of such carriers at an epidemic-free period is indeed necessary to explain the peculiar manner in which cerebro-spinal meningitis springs up in areas between which and previously infected areas no apparent connexion can be traced. The chronic carrier with probably a zone of carriers round him act as the bridge between one epidemic and the next. A generalisation therefore like that propounded by Mayer is entirely unjustified at the present time, and is calculated to give a false sense of security to the general and medical public.

MEDICAL SOCIETY OF LONDON.

Outbreak of Toxic Jaundice of a New Type among Aeroplane Workers.

A MEETING of this society was held on March 1st, Sir J. BLAND-SUTTON, the President, being in the chair.

Dr. W. H. WILLCOX, Dr. B. H. SPILSBURY, and Dr. T. M. LEGGE contributed papers on an Outbreak of Toxic Jaundice of a New Type among Aeroplane Workers. Dr. Willcox dealt with the clinical and toxicological portion, Dr. Spilsbury with the pathology, and Dr. Legge with the industrial aspects of the condition. Dr. Willcox's paper appears in full in our present issue.

Dr. E. A. COCKAYNE spoke of the close similarity between this condition and that of the epidemic catarrhal jaundice with which he was familiar. The clinical features and pathological changes were closely parallel, and in the latter disease during an epidemic some cases also only manifested intestinal symptoms without vomiting.

Dr. J. M. BERNSTEIN said that in one case he had found leucin in the urine, and in a severe case an enormous amount of urea. He had examined two rabbits which had been running about in a workroom where doping was done. One showed degenerative changes in the liver, but no fatty changes; the other no changes whatever. Two others had been exposed to the fumes of dope constantly, day and night; neither showed any signs of ill-health. More dope was then used, and some was mixed with their food; one was killed, but no changes were found. He did not think that these investigations could be held to negative those of the readers of the papers.

Dr. F. J. POYNTON referred to the fact that there were many mysterious cases of jaundice cropping up at the present time. Five nurses had suffered from it in one ward in succession. In children the jaundice ran a very long course; one had died, and parenchymatous degeneration and shrinking of the liver had been found.

Sir FREDERIC W. HEWITT said that he was chiefly interested from the point of view of delayed chloroform poisoning. There were certain points of dissimilarity. In that condition the course was more rapid, and jaundice was less obvious, and vomiting of a material like beef-tea occurred.

Dr. WILLCOX, in his reply, said that he was not at all surprised at the negative results obtained in the case of the rabbit. He always sedulously avoided those animals in toxicological experiments, since their reaction to poisons was peculiar.

HUNTERIAN SOCIETY.—A meeting of this society was held on Feb. 24th at the Barbers' Hall, Dr. A. C. Jordan, Vice-president, being in the chair.—Dr. T. D. Lister, in demonstrating an Apparatus for Producing Pneumothorax, remarked that the procedure was based on the observation that its spontaneous occurrence in cases of pulmonary tuberculosis sometimes led to recovery. The advantage of the artificial method over the natural was that

the gas introduced was sterile. Oxygen was run in first to obviate the danger of gas embolism in case a small vein had been punctured. Certainty that the needle was in the right place was assured when first a negative pressure and then varying pressures in accordance with the respiratory movements were observed in the attached manometer. His apparatus was based on that of Dr. de Carle Woodcock of Leeds. Oxygen was obtained by acting on a solution of perborate of soda with peroxide of manganese, whilst nitrogen was obtained by drawing air through an alkaline solution of pyrogallallic acid. Ether gas was introduced into the pleural cavity by altering the relative heights of the gas holders and the reservoirs containing an antiseptic solution. A great many taps were necessary, but he had devised one central control tap with an indicator, by which the whole apparatus could be very simply worked. The cases for artificial pneumothorax needed very careful selection. The operation had been performed far too often. A suitable type of case was one where there was rapid infiltration of one lung without fibrosis or cavity formation, and in which there had been no response to ordinary methods of sanatorium treatment. In such cases where the treatment had been persisted in for a long time he had seen very favourable results. He believed that these results were due not to closure of air tubes but to diminution of the flow of blood and lymph through the diseased tissues. The number of deaths caused by the operation was very small. They were due to gas embolism or to the effect of the "pleural reflex" on the heart.—Dr. G. T. WESTERN read a paper on Vaccine Therapy, its Present Scope. He referred first to the question of protective inoculation against typhoid as one of national importance at the present time. An active and partially successful campaign was being carried on against this measure. It was the duty of medical men to be prepared with a few well-controlled statistics and effective replies to objections. He quoted some striking examples of case incidence and mortality of typhoid among inoculated and uninoculated men living under exactly the same conditions, instancing especially the experience of the 17th Lancers in India in 1905 and the French soldiers at Avignon in 1912. He had inoculated a great many people against typhoid and the following questions had been frequently put to him: Is there any danger? Will it make me ill? Can I get typhoid if I am inoculated? How long will the protection last? He dealt briefly with the answers to these questions. In dealing with the present scope of vaccine therapy Dr. Western confined himself to the use of vaccines in generalised infections or septicæmias. He did not regard these as cases in which bacteria multiplied in the blood, but rather as local infections from which they were able on account of insufficient defences to find their way into the blood stream. In undoubted cases of progressive endocarditis he had often seen benefit from vaccines, but never permanent cure. Vegetations on the damaged valves were not vascularised, and consequently blood containing antibodies could not reach them, whilst they were in the best possible position for throwing off bacteria and emboli. The mortality from puerperal septicæmia, on the other hand, could be very substantially reduced by using autogenous vaccine. The same was true of acute septic infections with lymphangitis following, for instance, a prick or small wound. Doctors and nurses were liable to these attacks, as the direct passage of an organism from one subject to another was the finest way to exalt its virulence. Active immunisation by vaccines if undertaken promptly held out the best hope of cure in such cases. Stock vaccines might be given while the autogenous one was being prepared.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Jan. 28th, Dr. E. W. Hope, the President, being in the chair.—Professor Ernest E. Glynn read a paper on the Principles and Practice of the Prophylactic Use of Typhoid and other Vaccines, in which he pointed out that man might acquire immunity to typhoid fever naturally by contracting the disease. This was associated with a great increase of antibodies, such as agglutinins, opsonins, bacteriolysins, &c., in his serum. Also animals might acquire active immunity to typhoid fever artificially by vaccines; this was also associated with a great increase of antibodies. After referring to the terrible mortality from typhoid fever in recent wars, and giving a short account of the introduction of typhoid vaccines by Wright in 1896, he reported statistics from Britain, America,

France, Germany, Japan, and Italy, which demonstrated the great reduction in typhoid fever incidence and mortality as the result of antityphoid inoculation. The objections of antivaccinationists and others were next referred to. In the author's opinion the prophylactic use of typhoid vaccine in the British army was based on sound scientific principles, and was confirmed by practical experience from all parts of the world. He vigorously denounced the opposition of the antivaccinationists at the present critical time as criminal.—After some discussion of the paper Captain W. Permewan, R.A.M.C. (T.), proposed the following resolution:—

That this meeting of the Liverpool Medical Institution expresses its strong conviction that the time has come to make antityphoid inoculation compulsory in the British army.
Further resolved—

That this resolution be communicated to the Prime Minister, the Secretary of State for War, the President of the Local Government Board, the Leaders of the Opposition, the Irish Nationalists and Labour Parties, and to the press.

This was seconded by Mr. Bickerton and carried unanimously.

Reviews and Notices of Books.

Operative Surgery: The Head and Neck, the Thorax and the Abdomen.

By EDWARD H. TAYLOR, M.D., B.S. Dub., F.R.C.S. Irel., Professor of Surgery in the University of Dublin, Surgeon to Sir Patrick Dun's Hospital. Illustrated with 300 figures from original drawings, many printed in colours. London: J. and A. Churchill. 1914. Pp. 524. Price 30s. net.

THE author tells us in the preface that he has not attempted to include in this volume all the operations which have been or may be done in the regions of the body to which he has limited his book, but only those operations which a general surgeon is likely to be called upon to perform, and a knowledge of this limitation of the subject is necessary for the reader to understand the plan of the book. We think that the author has done wisely, for if he had endeavoured to present to the reader the whole of the operative surgery of the head and neck, the thorax and the abdomen, at least two large volumes would have been needed, and he would have been precluded from giving that full treatment of the subject which he has been able to supply in this volume.

The idea of the book arose from the teaching in some post-graduate classes which Professor Taylor gave in Trinity College, and the arrangement of the work is admirably suited for the instruction of those for whose benefit it was written—namely, for the surgeon who, having had little experience in operative surgery, may be called upon to operate; he may know theoretically what should be done, but he lacks that knowledge of the practical details which is so essential to success. This book supplies those details. In the case of each operation it describes the several stages very clearly, and explains why the author prefers the course which he advises. There is a wealth of illustrations which must materially assist the reader; many of the figures represent successive stages of the more important operations, and with one or two exceptions they are original. Many of them have been drawn from stereoscopic photographs taken in the operating theatre, and colour has been freely employed.

The whole book is eminently practical, and it may be confidently recommended. It is a credit to the surgery of the kingdom. A word is also deserved on the manner in which the book has been produced; the printing is excellent.

Electric Cooking, Heating, Cleaning, &c.: Being a Manual of Electricity in the Service of the Home.

By "Housewife" (MAUDE LANCASTER). Edited by E. W. LANCASTER, A.M.Inst.C.E., M.Inst.E.E. London: Constable and Co., Limited. 1914. Pp. 338. Price 3s. 6d. net.

So few householders using the electric current for lighting purposes, apart from its applications to heating and cooking, understand even the simplest technique of the system that we wonder greater efforts have not hitherto been taken to enlighten them. The majority of electricity consumers are quite in the dark as to what the current is, how it is controlled, measured, and most effectively employed. With gas it is different. Gas is an entity, not a force. Its escape is obvious to everybody and its rate of consumption is easily understood. Everyone understands the expressions "so many cubic feet per hour," "candle power," "3-inch pressure," and so forth, but few comprehend the meaning of "short circuits," "earthing," "ampères," "volts," and "watts," the terms applied to electric supply. We have little doubt that this ignorance has in many cases been costly and the source of misgivings about the integrity of the supply company when the bill is presented. The book before us, while it does not convince us that the time has come when we can abandon coal or gas in favour of the electric current for both heating and lighting purposes, puts technical matters of the kind we have indicated so clearly that we strongly recommend all electricity consumers to possess a copy. The convenience, cleanliness, and hygiene of the electric supply cannot be denied, and the main consideration which militates against its general use is cost. For fuel purposes electricity so far cannot economically compete with gas or coal. The author makes out that it can, and we may forgive her enthusiasm.

The book supplies a real need in furnishing useful practical information on the principles of the electric current for heating and lighting purposes. It enlightens the consumer of electricity on many points on which he is at present ignorant, but concerning which it would be very much to his interest that he should cease to be so.

Fever: its Thermotaxis and Metabolism.

By ISAAC OTT, A.M., M.D., Professor of Physiology, Medico-Chirurgical College, Philadelphia. New York: Paul B. Hoeber. 1914. Pp. 166. Price \$1.50 net.

THE three lectures which make up the text were delivered before the sophomore class of the Medico-Chirurgical College—sophomore, an old appellation still retained, we are glad to see, in Philadelphia, meaning wise fools. Fever is a subject of maximal importance in the practice of medicine—so important, indeed, in the author's opinion, that for five-and-forty years the veteran Professor Isaac Ott has been engaged on this subject both as a practitioner of medicine and a physiologist.

The first lecture deals with thermotaxis, or the mechanism of heat regulation. The author gives a full account of his own researches, begun in 1884, to show that thermotaxis depends upon four nervous centres—two basal—the corpus striatum and the chief one, the tuber cinereum—and two inhibitory cerebral centres—the cruciate and Sylvian. There is also an account of the work of other observers on the same subject. No thermogenic centres of a marked thermic capacity exist in the pons, bulb, or spinal cord. In

the second lecture heat dissipation or thermolysis is dealt with. This is carried on by the "polypnoic centre" in the tuber cinereum, the vasomotor centre, and the sudorific centres. The polypnoic centre drives the respiratory centre to increased activity, and thus throws off more water from the lungs. The author is of opinion that the tuber cinereum has vasotonic activity—i.e., it gives tonus to the vasomotor centre. The relation of internal secretions to temperature is discussed and so is the question "Is fever beneficial?" Adrenalin is regarded as having a very potent activity in the increase of temperature when it is in excess in the blood. Hyperthermia, "protein fever," and the calorimetry of malarial fever occupy the remainder of the lecture. In the third lecture an extended exposition of malarial fever and metabolism as given by Lehacheff and Avroroff, which, the author states, "confirms his researches" made ten years previous to theirs, is presented. These authors infer that the fever rise of temperature, in a strictly physical sense, depends chiefly upon the rise of heat production. Protein, carbohydrate, fat, water, and purin metabolism in fever is then passed in review.

Summing up, the author concludes that fever consists of at least two main characters—thermogenic and toxogenic. As to temperature, there is an agent which deranges the harmony of the thermo-inhibitory, thermogenic, and thermolytic apparatuses, by which in the initial stage the metabolism of the tissues is temporarily increased. During the chill, heat dissipation is temporarily diminished; afterwards it usually follows the fluctuations of heat production. Toxins are produced which stimulate the tissue cells, hence the true theory of fever is a neuro-toxogenic process. There is no increased production of heat in the stages of continued fever—i.e., typhoid fever—only a disarranged regulation of heat.

Physicians and physiologists will read these lectures with interest and profit.

LIBRARY TABLE.

Le Traitement des Anémies. Par H. VAQUEZ et CH. AUBERTIN. (Les Actualités Médicales.) Paris: J. B. Baillière et Fils. 1914. Pp. 76. Price 1.50 francs.—In this excellent and practical little volume the authors divide all anæmias for therapeutic purposes into "chlorotic anæmia" with relatively large diminution in the proportion of hæmoglobin, and "grave anæmia" in which the red cells are reduced below 2,000,000 per cubic millimetre. As they point out, the proper antithesis to the term "chlorotic anæmia" is "globular anæmia"; but as the milder forms of globular anæmia with more than 2,000,000 red cells tend to recover spontaneously, they need but little consideration. The various forms of anæmia are described in turn in this little book, and the best methods of treatment for each are detailed. Charts showing the progress of special cases are given, some at first hand, others borrowed from the literature of the subject. The various forms of treatment that have proved most successful and their results are briefly and temperately described, including preparations of iron, arsenic, 606, bone marrow, serum, transfusion of blood, cholesterolin, glycerine, the X rays, thorium-X, and splenectomy. The book is well written and full of sound practical advice, and obviously the work of experienced clinicians. It may be warmly recommended to the attention of all medical students and practitioners.

An Introduction to the Study of Organic Chemistry. By H. T. CLARKE, D.Sc. Lond., F.I.C. With diagrams. London: Longmans, Green, and Co. 1914. Pp. 484. Price 6s. 6d. net.—The author is quite definite in his view as to what a text-book on organic chemistry should be. He deals with general principles rather than with practice, and so has produced a work which, in his own words, "approaches the subject with the desire of displaying its orderly principles and structural unity." In that direction, we think, he has succeeded, because we find in his book a very clear exposition of this great branch of chemical science and an order of treatment which brings the reader step by step through preliminary considerations to complex developments. In other words, the foundations of organic chemistry will be well laid in the mind of the intelligent student who merely reads this book. In regard to practice he will gather nothing from it, but then the author is careful to add "no real knowledge of organic chemistry can be acquired without laboratory work," and we agree. But at the same time we are not going to deny the value of a "laboratory companion" or handbook setting out experimental directions. There is room, of course, for both the laboratory manual, used side by side with laboratory practice and teaching, and the text-book on "orderly principles." The latter Dr. Clarke has well supplied.

Life and Law. By MAUDE GLASGOW, M.D. London and New York: G. P. Putnam's Sons. 1914. Pp. 124. Price 5s. net.—The scope of Dr. Glasgow's book is best expressed by its sub-title, which is as follows: "The Development and Exercise of the Sex Function, together with a Study of the Effect of Certain Natural and Human Laws, and a Consideration of the Hygiene of Sex." Dr. Glasgow is evidently an ardent feminist; she has a very poor opinion of the male—e.g., p. 35: "Throughout the animal world we find the male more noisy, more emotional, more quarrelsome, pugnacious, and less self-contained than the female." Again, p. 47: "Woman lives more nearly on a plane than man; she is more sane, more equable, and better poised than he." True, this instability of the male gives rise to "that congenital abnormality known as genius, more common in man than in woman," but as against this "it is the same thing which causes the preponderance among men of idiocy, insanity, imbecility, moral deficiency, and criminality." If the unstable male who is reviewing this book may dare to say so, Dr. Glasgow's views on prostitution and possible remedies for that evil seem, so far as we can gather from them, quite sound. She acknowledges that the problem "is one which bristles with complications," and considers that the best method of dealing with the subject was the now unfortunately repealed Injunction and Abatement Law of Iowa, the provisions of which, however, she does not give. Among other suggestions she proposes education in sex matters, provision for healthful recreation for working girls, a minimum wage scale, and trade schools to teach girls to earn their living. As regards the prevalence of syphilis and gonorrhœa, she would like to see both parties to a marriage compelled to send in a clean bill of health.

JOURNALS AND MAGAZINES.

Annals of Tropical Medicine and Parasitology, Vol. VIII., No. 3.—This number of the Annals contains no fewer than 16 original articles, and extends to 272 pages of print, with numerous photographic illustrations, coloured plates, maps, and charts. The first paper is by Mr. J. M. O'Brien, of the West African Medical Staff, and in it is given a study of

some cases of yellow fever which he saw at Guayaquil, Ecuador, during a visit he paid to that notoriously insanitary seaport town for the purpose of increasing his acquaintance with the disease. Adverting to the natural immunity of infants to yellow fever now generally recognised, the author expresses the opinion that this is only temporary, but that permanent protection is acquired later on; for as they lose their infantile immunity they suffer one or more attacks of "undiagnosable" yellow fever, and thus by these "gentle vaccinations" they acquire a lifelong protection from the disease. Mr. O'Brien's paper is illustrated by a coloured plate.

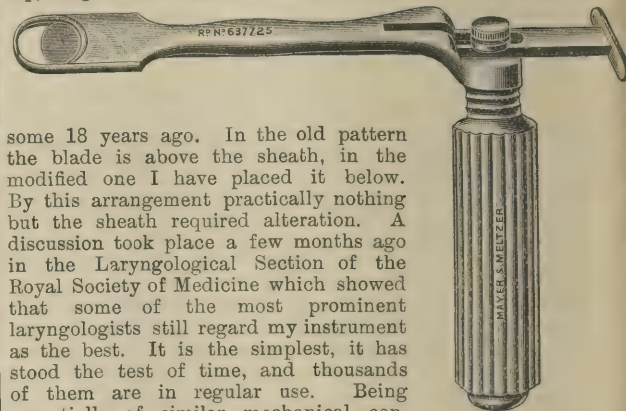
—Dr. J. W. Scott Macfie and Dr. G. H. Gallagher, of the West African Medical Staff, supply a joint article on sleeping sickness in the Eket district of Nigeria, in which locality the disease is endemic; but the type of the malady is mild and spontaneous cures appear to be frequent, most of the patients being children. Although the trypanosomes can be found in the gland juice they have not yet been detected in the peripheral circulation. The parasites differ in some respects in their morphology and their pathogenicity from typical strains of *T. gambiense*. The insect vector of the disease to man in Eket has not yet been determined, but suspicion has fallen upon *Glossina tachinoides*. This interesting article is illustrated by a number of photographs, a coloured plate, and a map. Dr. Scott Macfie also contributes notes on some blood parasites collected in Nigeria, with two coloured plates.—Professor John L. Todd writes on the trypanosome of Gambian mice. In general appearance this organism much more nearly resembles *T. acromys* than any of the trypanosomes which have been found in the blood of mice.—The important subject of the granule phase of spirochaetæ is discussed in a very interesting way by Dr. H. B. Fantham, who assists in throwing some light upon the question. In his paper he places on record some recent personal results obtained by himself, more especially while working last year in Khartoum.—Dr. J. B. Christopherson, director of the Khartoum and Omdurman civil hospitals, gives details of a case of naso-oral leishmaniasis, corresponding to the description of "espundia," and of a case of oriental sore, both originating in the Anglo-Egyptian Soudan.—*Quelques Observations Préliminaires sur la Morphologie et de la Biologie de la Larve, de la Nympe, et de l'Image de l'Auchmeromyia Luteola* (Fabr.) is the title of a contribution by Dr. J. Schwetz, of Kabinda, Congo.—A joint article by Dr. J. O. Wakelin Barratt and Professor Warrington Yorke gives an account, with numerous charts and tables, of experiments on the relation of bile pigments to hæmoglobin.—An outline of the antimalaria campaign recently carried out in Formosa is furnished by Dr. J. Hatori, medical inspector under the Japanese Government, the paper being illustrated by a map and several charts.—Dr. Harald Seidelin supplies an article on *klossiella* in the kidney of a guinea-pig, with two plates. This parasite was found in an animal which had been used for yellow fever experiments at Yaba, near Lagos. Since his paper was written Dr. Seidelin has observed identical parasites in another guinea-pig from the same locality.—Several articles are next contributed by members of the staff of the Australian Institute of Tropical Medicine, Townsville. The first of these is a joint paper by Dr. A. Breinl and Dr. H. Priestly on the changes in the neutrophile blood picture of Arneth observed in children living in tropical Queensland, and the same authors contribute some observations on the blood conditions of children of European descent residing in tropical Australia, being the result of an examination of 574 school children between the ages of 7 and 15 at Townsville.—Dr. Breinl also, in conjunction with Dr. W. J. Young, discusses the circumstances under which lead poisoning occurs amongst North Queensland children. The two authors suggest that such cases may commonly be due to the inhalation of dust containing lead; they draw attention also to the fact that a number of the children who suffered were addicted to the pernicious habit of biting their finger nails.—Details of some experiments, made at the Townsville Institute, on the migration of the larvæ of *Onchocerca gibsoni* through the capsule of the worm nodules, are given by Dr. W. Nicoll.—Dr. H. B. Fantham and Dr. Annie Porter describe the morphology and economic importance of *Nosema bombi*, n. sp., parasitic in various humble-bees.—The last article is by Professor J. W. W. Stephens, and in it he continues his studies in black-water fever. He puts forward a schedule which he thinks will be found useful in recording cases of this serious affection.

British Dental Journal.—The issue of this journal for Feb. 15th contains a practical paper by F. N. Doubleday on local anaesthesia in conservative dentistry. He advocates the use of novocaine with suprarenin, using about 40 minims of a 1.5 per cent. solution. The injection should be made into the reflection of the mucous membrane from the gum to the cheek, and not into the tough mucous membrane of the gum. Details are given for the injection for the various teeth. The author advises that the cavities prepared under local anaesthesia should not be permanently filled at the time in case a small traumatic exposure has been made and passed unnoticed. He states that he has had excellent results. Mr. A. Barritt contributes a short article on dental prescribing and the new Pharmacopoeia, and Mr. J. T. Hall a note on an easily prepared root-filling.

New Inventions.

A MODIFICATION OF AN OLD TONSILLOTOME.

FOR the purpose of meeting the requirements of those surgeons who when removing the tonsil force it through the opening in the tonsillotome by a pushing instead of a pulling action, I have modified the instrument I designed



some 18 years ago. In the old pattern the blade is above the sheath, in the modified one I have placed it below. By this arrangement practically nothing but the sheath required alteration. A discussion took place a few months ago in the Laryngological Section of the Royal Society of Medicine which showed that some of the most prominent laryngologists still regard my instrument as the best. It is the simplest, it has stood the test of time, and thousands of them are in regular use. Being essentially of similar mechanical construction the modified instrument will doubtless prove as durable as the original. In this, as in other matters, however, fashions change, though the principles underlying sound mechanical construction do not.

Messrs. Mayer and Meltzer, of Great Portland-street, London, W., are the makers.

CHARLES J. HEATH, F.R.C.S. Eng.,
Late Surgeon, Throat Hospital, Golden-square, W.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Feb. 18th, Sir Francis H. Champneys being in the chair. A letter was considered from the Local Government Board transmitting a copy of an application received from the Association for Promoting the Training and Supply of Midwives for a grant in aid of their work, and asking to be furnished with the observations of the Central Midwives Board on the subject. The Board directed that the Local Government Board be informed that the objects of the association are good and its council contains many well-known names, and that the Board believes that it belongs to a group of institutions which are doing valuable work and all of which deserve encouragement. A letter was considered from the medical inspector of midwives of the City of Bristol asking whether a midwife is entitled to operate on a case of tongue-tie. The Board decided that in reply to the question whether the Board considers that the dividing of the frænum of the tongue of a new-born infant falls within the duties of a midwife, the answer be in the negative. A letter was considered from the council of the Incorporated Midwives Institute transmitting for the consideration of the Board a copy of a resolution forwarded by the institute to the Local Government Board asking that body to refuse to sanction the appointment by local bodies of unqualified and inexperienced women as inspectors of midwives and for other health work. The Board decided that the Incorporated Midwives Institute be thanked for its communication.

THE LANCET.

LONDON: SATURDAY, MARCH 13, 1915.

War and Typhus Fever.

THE recently announced death of the Director-General of the Austrian Army Medical Department from exanthematic typhus in Galicia, contracted, as it appears, in the execution of his official duty, serves as a reminder of the very close and intimate association of war and typhus fever. By the light which scientific investigation has thrown upon the etiology of this disease during the last six years this association is not difficult of explanation. In the course of protracted military campaigns in which large masses of troops are herded together mostly under unfavourable sanitary conditions, where the maintenance of personal cleanliness is almost impossible and the clothing has to be worn without a change for weeks or even months, infestation by body vermin, and especially by *pediculus vestimenti*, soon becomes inevitable. The researches of NICOLLE, of Tunis, and other investigators have proved conclusively that the actual transmitting agent of the typhus virus to man is the body louse. When, therefore, military operations are carried out by verminous soldiers in a region where this disease is endemic the probabilities of an epidemic developing sooner or later are very great.

During the Napoleonic wars at the beginning of last century typhus fever ravaged the armies in the field and carried off many victims. In the Crimean campaign of 1854-56 the malady attacked the British, French, Turkish, and Russian forces. The same experience was noted in the Russo-Turkish war of 1878, as also in the recent conflict in the Balkans during 1912-13. The colossal combat in which at the present time the armies of eight European nations are engaging, seems hardly likely to reach its conclusion without the development of a typhus prevalence in one or another portion of the assembled hosts. The operations in Eastern Europe are taking place in a region which includes two well-known endemic areas of exanthematic typhus—namely, Russian Poland and Austrian Galicia. At the present moment owing to the war our usual sources of medical information in Galicia are not available, and we cannot therefore say how much typhus fever there has been in this province since hostilities began. But this we know, that for a long series of years attacks of typhus fever in Galicia have ranged from 2000 to 6000 a year. A recent report in a medical journal published in one of the neutral countries states that in January of this year upwards of 1500 cases of typhus

fever (*Fleckfieber*) were notified in Austria and that about 1000 of them occurred in the province of Styria, where, so far as can be ascertained, no typhus had been previously reported for 20 years or more. Typhus fever has also been carried into Germany, in which for many years the disease had been extinct; and notification has been made of cases among the military and civil populations as well as among prisoners. Although the Western battlefield of Europe does not include any locality in which typhus fever is still endemic, danger, nevertheless, may arise in another way. German troops are often moved from one side of Europe to the other, and it is not improbable that German or even Austrian prisoners taken in the western area might have come from the armies operating in Galicia or Poland, ill or incubating a typhus attack just before their capture, and thus bringing the infection into the camps of the Allies. But a more immediate source of danger is one which has already been discussed lately by our French brethren in the Academy of Medicine at Paris—namely, the conveyance of the disease by native troops sent to France from Tunisia, Algeria, or Morocco, in all of which countries typhus fever remains endemic to this day. The peril of infection is largely removed by the knowledge of its existence, for thorough methods to combat it have already been arranged. The danger from typhus is much greater in Eastern Europe, though the West is not altogether without its share of risk.

Typhus fever is endemic in Turkey and Egypt, in both of which countries the allied troops are in contact with the enemy, and an epidemic might develop among our own fighting men, spreading from our prisoners, if the most elaborate precautions were not being taken. Never before in the history of the world have such enormous forces been assembled together as those now facing each other in Europe from Flanders to the Dardanelles; but it may also be added that never before have medical science and military hygiene been in a better position to cope with the dangers that may arise from typhus fever or other epidemic diseases. We may confidently rely on the Army Medical Departments of the allied armies to use all the means which science and experience have placed in their hands to avert the ravages which might otherwise occur amongst their mighty hosts. And one of the most effective means is the destruction of vermin.

The Treatment of Cleft Palate.

THE most practical problem in connexion with congenital cleft of the palate is the best method of treatment, though discussion should and will continue as to etiology. A decision as to the best method of dealing with this most troublesome deformity will be acknowledged by all to be of the utmost importance, for the affection of speech which accompanies an untreated cleft

palate is a serious handicap in after-life. In the case of many lesions or abnormal conditions the ultimate decision as to the best method of treatment may be left to general impressions derived from multifarious records, but where the records tell no common tale it is far wiser to let the decision depend on statistical facts. This is the right way in which to approach the question of the treatment of cleft palate; and in his recent Hunterian lecture (concluded in our present issue) Mr. H. BLAKEWAY, by considering the matter from the statistical side, puts the surgical profession in distinct debt to him for a noteworthy contribution to the subject.

At the present time there are two, or at the most three, methods of treating cleft palate which are in evidence, though from time to time several other operations have been brought forward. These are the methods advocated by Dr. T. W. BROPHY of Chicago, by LANGENBECK, and by Sir ARBUTHNOT LANE. Dr. BROPHY, at the Clinical Congress of Surgeons of North America, held in London last summer, explained to an interested audience his whole technique, the reasons for its employment, and his claims. He said "that the normal amount of tissue is there and should be used immediately to close what is in effect a wound," and inquired what surgeon would wait two years in order to close a wound. He laid stress on the broadness of the upper jaw in these cases of soft palate, and in particular insisted that the action of the tongue in the gap and the upward pressure of the lower jaw both produced a widening of the cleft. An interesting debate followed, in which Sir ARBUTHNOT LANE and Mr. JAMES BERRY put forward the arguments respectively for the flap method and the method of median suture, Sir ARBUTHNOT LANE attaching the same importance as Dr. BROPHY to immediate radical remedy, while Mr. BERRY considered that in the common, single or double, cleft palate, associated with harelip, while the harelip should be remedied in the earliest infancy, operation on the palate should be postponed until the second or third year of life. Mr. BLAKEWAY shows that the hypothesis on which BROPHY'S operation is founded is untenable. The well-known American surgeon holds that in a case of cleft palate the two maxillæ are too far apart by exactly the amount of the palatal cleft, and he deduces from this that the correct way to treat a cleft palate is to push the two maxillæ together at a very early age, when such a procedure is possible. Mr. BLAKEWAY, however, has proved by a series of careful measurements that in the majority of normal infants the upper alveolar borders are wider apart than the lower, and that the difference noticeable in cases of cleft palate is often not much greater than that seen in children born with fully united palates. In practice, too, it has been found that it is nearly always impossible to bring together more than the alveolar arch, while the cleft itself is very little modified,

but, of course, this narrowing of the alveolar arch is productive of improvement in the appearance of the face, produced by the bringing of the nose to the mid-line. Mr. BLAKEWAY concludes that it is possible that BROPHY'S method may be used in exceptional cases, but not as a routine operation, and with this conclusion we concur. Of the two other methods we have, first, that which was systematically practised by LANGENBECK, and secondly, that with which the name of Sir ARBUTHNOT LANE is most closely associated. To estimate the comparative value of these two methods we have to consider both the rate of mortality after the operation and the functional value of the result. The median-suture method of LANGENBECK has a very low mortality; indeed, in a series of 154 cases operated on by Mr. BERRY there were no deaths at all. On the other hand, in a series of 100 consecutive cases treated by the flap method employed by Sir ARBUTHNOT LANE there were 19 deaths. This death-rate is no disparagement to the skill of the surgeon, but must be ascribed wholly to the early age at which the operation is performed and the severity of the procedure. It is true that the advocates of the flap operation claim that there is a grave mortality from malnutrition amongst harelip children who are untreated, and that the operation soon after birth saves lives that would otherwise have been lost, but the data for such an opinion are wanting, and probably the risk of death from malnutrition has been over-rated. In this direction further figures are wanted, and the question of causation—heredity, maternal injury, even maternal impressions—should be looked into and not treated as of merely academic interest.

When we turn to the ultimate conditions we find that by either method excellent functional results have been obtained in some cases, but the proportion in which the issue is good is greater with the median-suture method, for here the cicatrization is less marked. Mr. BLAKEWAY has himself examined a large number of the children on whom these operations have been performed. On the whole, therefore, statistics point to the view that the median-suture method offers the best chance of a satisfactory outcome, and remedy is obtained with less risk to the life of the patient.

COMPULSORY NOTIFICATION OF CHICKEN-POX IN LONDON.—In October last the Lambeth borough council suggested that the incursion of large numbers of refugees and others from the continent made it desirable to make chicken-pox compulsorily notifiable, since mild cases of small-pox might be diagnosed as chicken-pox. The London County Council decided at that time not to take action, but recently cases of small-pox have occurred, and on March 9th the Council, by special resolution, made chicken-pox notifiable within the administrative county until June 30th, 1915. The Local Government Board had notified its approval in advance.

Annotations.

"Ne quid nimis."

THE SOLDIERS' FOOD.

THE prolonged hearing of a summons against Messrs. J. Lyons and Co. in respect of beef alleged to be unfit for food, but intended for troops quartered at the White City, ended in the conviction of the caterers and the imposition of the maximum fine of £50, coupled with £70 costs. Mr. Fordham, who heard the case at the West London police-court, had an early difficulty in dealing with it owing to his having omitted to point out to the defendants that they could claim trial by jury. This, however, was apparently rectified by recommencing the hearing, and the main point raised in defence was, briefly, whether unwholesome food was being prepared for the troops at the time when the Hammersmith borough council's representative first saw it or whether it had been withdrawn by the defendants' servants after detecting its condition. The evidence bearing on this point was of a contradictory character, and it would not be desirable to recapitulate and comment upon the learned magistrate's observations in announcing his decision, in view of an intimation by counsel that there will be an appeal, at which this question and the technical one indicated above may be further discussed. Mr. Fordham was himself satisfied that the defendants were to blame, and were seriously to blame, for the acts of their servants, and he concluded by saying that the Hammersmith borough council would not have done its "barest duty" if it had not taken proceedings. The council, therefore, and the medical officer of health, Mr. J. B. Howell, deserve congratulation upon the success which has been obtained by them at the present stage, and upon their intervention in a matter not likely to have come within the range of their previous experience. Before the war it might not have struck anyone that the supervision of the food of military forces, training in a particular neighbourhood owing to fortuitous convenience for billeting them, would be added as a duty to that already discharged with regard to the civil population by a medical officer of health. Whether this is wholly a good arrangement is for the consideration of the Government and of the military authorities, but we suggest to them that as they are spending money on feeding an army they should assist in providing supervision sufficient to secure the proper carrying out of their intentions. In this instance the actual arrangement in force at the White City seems to have been made between the caterers and the County Territorial Force Association for the feeding of not less than 10,000 men at the rate of 1s. 9d. per man per day. Such a rate should suffice for the provision of a sufficient supply of food not only sound but palatable, while leaving a fair margin of profit to the contractor. Has this been so either universally or even generally is a question which the British citizen would like to have answered satisfactorily. It may be an undesirable topic to investigate publicly at such a time as the present, but some day inquiry ought to elucidate it, and meanwhile

every effort should be made to remove as far as circumstances permit, any cause for complaint and any suspicion that the country is not getting full value for the money that it is expending. It is not right that soldiers should be well fed and content in one place, when elsewhere others upon whom an equal amount is being spent have good cause to complain. The fact that many do not complain, but contentedly make the best of adverse circumstances which they did not bargain for, is entirely to their credit, but does not otherwise affect the matter. The recent case in West London is not alone in calling attention to soldiers' food and the conditions under which it is supplied. Recent correspondence in newspapers has shown that regrettable waste of provisions in army camps has taken place and is taking place. The extent to which this is preventable, and the possibility of introducing better training of caterers and cooks are large questions into which we do not now go. It would be difficult to introduce general improvement with any immediate effectiveness in a matter with regard to which as a nation we are at normal times indifferent, and no one suggests that the present conditions are bad as a whole. In the British Islands economical cookery, producing palatable and wholesome results, is insufficiently studied by a large proportion of the women of the working classes, and is considered beneath the attention of men. Hence for the classes who are able to eat outside their houses foreigners have for many years done business in towns wherever the demand has attracted supply. The result with regard to cookery for the new army, in circumstances admittedly unforeseen and wholly abnormal, has been that a very large number of those who have joined it have found the nature of the food an irritating hardship. This is certainly not due to niggardliness on the part of the Government, and, indeed, the profusion which appears to characterise the whole matter is not its least serious aspect. This feature, however, may perhaps lead to the ultimate improvement which is desired by all who wish to see no hindrance placed in the way of recruiting, and who hold that the spending of money by the State upon the food of its soldiers should have as its object the cultivation of health, strength, and contentment in them in the highest attainable degree. So far as the army engaged in fighting is concerned, it appears to be universally agreed that all circumstances being considered the arrangements made for supplying it with food have been admirable.

SKIN AND BODY SCRAPERS.

CERTAIN flint implements of the neolithic age have long been recognised as skin-scrapers, used probably in their day in the dressing of hides and skins. An "acheulite" now lies before us which many years ago belonged to the late Sir Joseph Prestwich. It was picked up by him when in the society of Boucher de Perthes and Sir John Lubbock at St. Acheul, near Amiens, as long ago as April, 1860. In shape it is roughly oval, is about $\frac{1}{2}$ inch in thickness, 2 inches long, and $1\frac{1}{2}$ inches wide. The edges have been chipped to a certain sharpness, and more than one "bulb of percussion" on both its faces prove it to be beyond doubt a flint worked by man. Sir Joseph Prestwich opined that it was held in the hand and used to scrape off hairs from the hides of animals. It is now thought to have been a razor. The question thereupon arises:

Did proto-man ever use such an instrument to scrape off his own body-hair, which must have been very thick and very hot, or, Job-like, to relieve an itching skin? The flint skin-scaper may indeed be the ancestor of the razor or of the body-scratchers which from the days of the potsherd of Job onwards have assumed various shapes—such, for instance, as a hand at the end of a rod—and been used in many lands either to destroy or evict the flea and the pediculus or to assuage the tortures of a surface eruption. Among the ancients the skin-scaper became in one of its forms the strigil, which was used in the routine of the bath, and is represented in the well-known statue by Lysippus of an athlete drawing such an implement over his forearm. The strigil is a curved and grooved metal instrument, which with its handle somewhat resembles a sickle. The ancients employed it to apply oil as well as to remove wet or perspiration from the skin—hence the groove. But it must have been tiresome to use, and was probably only a time-honoured survival from an age before cloths and towels were known, just as now the lecture survives in an age of books and print. There was a time, of course, when the strigil was the only thing possessed by man to dry himself with. This becomes apparent on referring to the fine collection of eoliths lately exhibited in the Museum of the Royal College of Surgeons of England by that indefatigable collector, Mr. Morris, of Lewes. Mr. Morris's graduated collection of early flints, arranged on the analogical principle, contains many specimens which sceptics have roughly refused to consider as in any way man's handiwork. In love with the Garden of Eden theory of the origin of man, many people are ready to maintain that palæontology is all moonshine, and it was surely somewhat in this spirit that the Anthropological Society applauded Mr. Dawson, of Piltown skull fame, when he showed that a bag of starch can, when suitably sat upon, be broken up into all the well-known eolith shapes. Mr. Morris, however, agrees with him, and anyone who has watched the aboriginal flint-workers of Australia or the traditional gun-flint makers of Norfolk at work will be bound to admit that they often break their flints up by throwing a huge lump down and letting nature split out their working material. Those, however, who have collected eoliths for many years and have candidly examined Mr. Morris's collection, will have come to the further conclusion that whole series of flints, found only in certain areas, such, for instance, as Professor Sir Joseph Prestwich's grounds at Darent Hulme on the North Downs, have certain points in common which prove them to be the work of Nature adapted by the hand of man. Such are the body-scrapers or hollow scrapers akin to the foot-scrapers of the Egyptians and the "body-stones" still used by modern savages. In shape these scrapers greatly resemble the cocked hats made out of paper by boys, the under side being usually polished and concave, and one if not both sides bearing traces of a more or less elaborate chipping process. It is probable that proto-man in Southern England was hairy and gorilla-like, that he suffered from heat or even vermin, and that he used body-scrapers to rub himself down. The stones certainly look as if they could have been used for some such purpose, and, though small, they exactly fill the hand. At the present time, according to Ratzel's "History of Mankind," the Tungoses and Samoyeds use more than one curved instrument in the dressing of skins, which owing

to concavity suggest descent from these eolithic shapes. The Eskimos employ curving bones for the same purpose. After being for ages employed on the human skin the skin-scaper possibly came down in the world and turned into a furrier's tool. Thus by analogy the bee-hive house and round tower of the Stone Age in Ireland have become the hen-house in Dingle, and as such are still erected on the bee-hive pattern near Dunmore Head to-day. The bee-hive house, indeed, lingered as the pigsty in Wales when Stoddart drew one of his prettiest illustrations, and we see it still in the round haystack of North Britain. From the medical point of view it is interesting to surmise that our earliest ancestors suffered from hair, heat, and vermin, and that those best survived who scraped and rubbed so well and so often as to have polished whole multitudes of flints.

CAUTERISATION OF ADHESIONS IN AN ARTIFICIAL PNEUMOTHORAX.

ONE of the greatest obstacles to the induction of a complete pneumothorax and the consequent immobilisation of the lung is the presence of pleural adhesions, which are, unfortunately, exceedingly common in advanced pulmonary tuberculosis. Several operations have been devised with a view to securing the more or less complete collapse of the lung, even when it is almost totally adherent to the chest wall. The latest device comes from Sweden, where Dr. H. C. Jacobaeus and Dr. H. Tideström¹ have elaborated a contrivance enabling the operator to see the interior of the pleural cavity while carrying out small operations on the lung. Under local anæsthesia an ordinary sized trocar is passed through the chest wall into the pneumothorax, and through this trocar a thoracoscope of the size of a No. 12 Charrier is introduced. When the pneumothorax is complete the whole of the upper lobe of the lung can be inspected without moving the thoracoscope; and the entire pleural cavity can be examined in this way without moving the instrument much. Dr. Jacobaeus has examined the pleural cavity in this way in about 200 cases without a single accident or great discomfort to the patient. When an adhesion is located, a small trocar is introduced in its neighbourhood, and through it a galvano-cautery is passed, its movements being controlled by the thoracoscope. In two cases the operation did no harm, but was ineffective, presumably because the adhesions were too extensive to be severed in this manner. But in a third case the operation was most successful. The patient was a nurse, aged 22, the whole of whose left lung was diseased. The sputum contained numerous tubercle bacilli, and fever persisted in spite of sanatorium treatment. The left lung was accordingly treated with injections of nitrogen, and its compression was complete except over a cavity, the collapse of which was prevented by a fibrous band passing from the lung to the chest wall. The thoracoscope was introduced through the fourth intercostal space, and the galvano-cautery through the third space in the anterior axillary line. The adhesion was severed in less than a minute, and the lung was then seen to collapse completely. After a few days of slight fever the patient rapidly recovered, and the sputum dwindled till it disappeared altogether. Dr. M. D. Jacobsson² has also succeeded in severing pleural

¹ Hygiea, vol. lxxvi., No. 15.

² Ibid., vol. lxxvi., No. 17.

adhesions with a galvano-cautery, the movements of which he controlled under the X rays, but he admits that the technique elaborated by Dr. Jacobaeus and Dr. Tideström affords greater facilities for this undertaking.

THE BLOOD PICTURE IN MILIARY TUBERCULOSIS: ITS DIAGNOSTIC VALUE.

It has been pointed out by Matthes in the *Medizinische Klinik*, 1912, that in miliary tuberculosis there occur a relative increase of the polymorphonuclear leucocytes and a relative decrease in the percentage of lymphocytes. The total count of white cells may be either normal—that is to say, anything between 5000 and 8000 per cubic millimetre—or less than normal. From Professor Matthes's clinic in Marburg comes a paper by P. Wack, published in the *Deutsches Archiv für Klinische Medizin* (1914, vol. cxv., p. 596), which seems further to confirm this observation. In nine cases of miliary tuberculosis the blood was examined; in all but one of these cases the diagnosis was confirmed ultimately by post-mortem examination. The odd case was a straightforward one of tuberculous peritonitis and miliary tubercles elsewhere. A typical blood count in such a case (Case 7 of the series, for example) shows as follows:—

	Normal.	Miliary tuberculosis.
Leucocytes	5000 to 8000	6400
Polymorphs	70 per cent.	88.5 per cent.
Lymphocytes	25	8.5
Other elements	2 to 5	2.5

In some cases the proportion of polymorphs is not so high, in others it may be extraordinarily high—e.g., 94 per cent. of all white elements (Case 7). It is interesting to note that as the case progresses the excess of polymorphs over lymphocytes increases; this is well shown in Case 1 of P. Wack's series. The patient was under continuous observation for the last seven weeks before her death and the blood was examined 21 times. For the first three weeks of this period the proportion of polymorphs was about 70 per cent., a normal figure, and that of the lymphocytes was about 30 per cent., again fairly normal. Then followed during the last few weeks a progressive change of the blood picture till the typical lymphocytopenia and excess of polymorphs were well marked. Continuous blood examination, a leucocyte count, constitutes, so Naegeli suggests, as delicate an indication of the progress of the case as does the pulse and temperature curve. Lymphocytosis in this relation suggests a more favourable prognosis; excess of polymorphs, on the other hand, is less satisfactory, and may betoken secondary infection. It is of interest to note that the total leucocyte count may be below normal. As regards differential diagnostic value, abdominal typhus may show a marked leucopenia, even to only 1000, but there is relative excess of lymphocytes. Sepsis shows leucocytosis, not usual in miliary tuberculosis. Febrile pulmonary tuberculosis with few focal signs generally gives a lymphocytosis and the neutrophile cells are either normal or only slightly reduced. Finally, a remarkable example of the polymorphonuclear demand which these cases of miliary tuberculosis may provoke is quoted, when the blood picture certainly suggested an acute myelogenous leukaemia, which turned out to be miliary tuberculosis at the post-mortem examination. This case

was interpreted as essentially miliary tuberculosis which had stimulated the marrow to produce the myelogenous unformed elements. A similar case of this character is also noted (Kast) in which there were 32 per cent. of myelocytes. The post mortem examination showed miliary tuberculosis and the marrow indicated no abnormality. This relationship of miliary tuberculosis to such forms of leukaemia is of interest, and the lesser marked blood changes as above noted seem to have a value of some degree, both for diagnosis and, perhaps, for prognosis.

THE OPPORTUNITY FOR WOMEN IN MEDICINE.

THE annual meeting of the New Hospital for Women on March 11th directs particular attention to the fact, which we have already commented upon, that now is an exceptional time for women to adopt a medical career. Among the cataclysmic results of the war is a shortage of doctors necessary to meet the needs not only of the army and navy, but of civil practice, hospital work, the health department, and other non-military public services. Moreover, the shortage in the immediate future is likely to increase rather than to diminish, for not only are many junior students interrupting their curriculum to go to the front in various capacities, but there is also a marked fall in numbers of those entering for a medical career, so that there will necessarily be a corresponding falling off of graduates some six years hence. This future shortage, even more than the present deficiency, forms a powerful justification for an increase in the number of women students of medicine. The proved capabilities of women in this direction are well demonstrated by Professor Howard Marsh,¹ who in an article in the *Cambridge Review* examines the question of what position women have, as a matter of fact, attained in the medical profession and what are their credentials for the practice of medicine. He points out that the entries at the London School of Medicine for Women are progressively increasing, and this year numbered 65, while the number of students now in the school is 220. In examinations women have attained very high distinction, having carried off gold medals in open competition with men in anatomy, physiology, midwifery (three times), surgery, medicine, forensic medicine (twice), and State medicine, in proportion to their relative numbers a very high percentage; and since the Conjoint Examination of the Royal Colleges of Physicians of London and Surgeons of England has been thrown open to them one woman has taken the F.R.C.S. Professor Marsh speaks from his own knowledge of women who display every endowment and qualification necessary for the higher levels of operative surgery and whose results are as favourable as any obtained by men in similar groups of cases, while in general practice and in the various departments of public health their efficiency and success have been conspicuous. Professor Marsh lays particular stress on the administration of anaesthetics as a test of efficiency, and states that out of the 3577 operations performed during the last seven years at the New Hospital for Women, where anaesthetics are invariably given by women only, there have been only two deaths under an anaesthetic, a truly remarkable result. Women are now filling, in a

¹ The Scarcity of Doctors, *Cambridge Review*, Feb. 24th, 1915.

most satisfactory manner, the post of resident medical officer at many provincial hospitals, and it was recently stated that Surgeon-General Sir Alfred Keogh had invited Dr. Flora Murray and Dr. Garrett Anderson, after seeing their work at the front, to come to London and take charge of a new military hospital to contain 500 beds, to be staffed entirely by women, women orderlies working under the sisters. A point that has been a source of great difficulty with regard to the employment of women in other pursuits in competition with men has been a tendency on the part of women to undersell men. It is satisfactory to learn from Professor Marsh that those in authority are taking measures for the prevention of this tendency in medicine. It is understood that when medical men return from military service the medical women who have acted as their substitutes will retire in their favour. This will in some cases constitute hardship, but no other course is possible or desirable. We are glad to feel sure, however, that these women practitioners who have done good work will readily find other openings, in view, not only of the shortage of medical men, but especially because of the enormous development of official medical service that has already taken place, and will probably continue to take place when the war is over.

SENILE PARAPLEGIA.

IN the *Medical Record* of Jan. 30th Professor M. A. Starr has described one of the maladies of old age which has received little attention either in text-books or in other forms of medical literature—senile paraplegia. Under this symptomatic title there appear to be included different pathological conditions, which, however, present a similar clinical picture. Senile paraplegia begins after the age of 65 years, the time depending upon the general vitality of the patient. He gradually becomes more feeble and notices first increasing disability in walking, going up stairs, or standing for any length of time. In the end he becomes bedridden. In some cases the weakness is attended by ataxia, which is more marked than the weakness. In other cases pain is a prominent symptom and is felt either on movement or on standing, although it may occur spontaneously. It is particularly severe after exertion and towards night. The pain is always attended by coldness of the feet and legs and not infrequently by sensations of numbness and tingling. Atrophy of the muscles is more marked than is usual in feeble old persons, and the tendon reflexes are lost. The limbs are usually flabby, cold, and blue, and not infrequently œdema occurs when the patient is out of bed. Occasionally loss of control of the sphincters occurs late in the case. Pain in the back and round the loins is common and may cause insomnia. As a rule the hands and arms are not affected. The cases seem to form three pathological groups: 1. The primary disease lies in the muscles and may be likened to a slowly progressive muscular dystrophy. 2. There is evidently an active degenerative neuritis characterised by spontaneous pain, burning and tingling, and tenderness along the nerves. Areas of hyperæsthesia and anæsthesia in the legs are not uncommon. The anterior crural nerves appear to be more frequently affected than the sciatic, and not infrequently there is considerable pain in the rectum and bladder, showing that all the branches of the sacral plexus are involved in the degeneration.

3. The spinal cord is evidently the seat of disease. There are ataxia and involvement of the sphincters in the early stage. The muscular atrophy appears to be more rapid than in the previous groups, and in the later stages trophic symptoms in the skin are more frequent. Professor Starr suggests that the pathological condition is venous congestion of the lower portion of the spinal cord leading perhaps to œdema. The prognosis in all cases is manifestly unfavourable, but there may be great variations in the course and marked improvement, more or less temporary, under treatment. In the muscular cases a stimulating diet with meat and fatty foods, diminution in the amount of salt taken, and administration of alcohol and small doses of strychnine will cause some arrest of the degeneration and improvement in the symptoms. Warm baths at a temperature of 100° F. for 20 minutes and mild massage are beneficial. But in cases of neuritis baths and massage should be avoided on account of the tenderness, and warmth should be applied by heating the bed. In the spinal cases hot and cold douches to the back, massage of the back and limbs, and dry cupping of the spine are of service. The patient should lie prone so that gravity may aid in emptying the congested veins. Senile paraplegia is easily distinguished from spastic paraplegia due to lateral sclerosis, in which muscular rigidity with exaggerated knee-jerks are present. It should not be confounded with the paraplegic condition of slow onset appearing late in Parkinson's disease, where the tremor is usually a prominent symptom and the gait is slow, shuffling, and stiff, with a tendency to fall.

PROLONGED VACCINE THERAPY IN TYPHOID FEVER.

Professor V. Pensuti publishes in a recent issue of *Il Policlinico* a further series of 69 cases of typhoid fever treated by vaccines. These cases seem to show that vaccine therapy in this disease has an indisputable efficacy, possesses the requirements of a specific treatment, and if in some cases the evidence of its utility has not been immediately apparent later observations on patients, and on the behaviour of the course taken by the infection, render its application more clear and profitable. Having noticed that typhoid patients, whether they recovered naturally or by vaccine treatment, were prone to have relapses, Professor Pensuti took note of the number of relapses occurring in a group of cases vaccinated with a limited number of injections. He found a relapse occurred in about one out of every four. He then had recourse to 31 new cases in which, having vaccinated them with doses believed to be sufficient, he repeated for some time a daily small injection of vaccine and kept them under observation as long as possible after the cessation of fever to notice whether relapses took place. The doses employed were 12,500,000 daily, and in a child aged 5 years and in another aged 7 years 6,000,000. These injections were given for 11 to 25 days and the period of observation lasted for about three weeks. None of these cases had any relapse, although occasionally there were rises of temperature for a period of from four to six hours with a maximum of 37°–38° C. With regard to the effect of the treatment on the duration of the illness, Professor Pensuti records a fair number of cases in which the fever promptly came to an end; the effect on the general condition and

on the various symptoms was none the less marked, while albuminuria diminished and disappeared so rapidly as to render it difficult not to admit a causal connexion between this fact and the vaccination.

THE Lumleian lectures will be delivered at the Royal College of Physicians of London by Dr. Sidney Martin, on Non-ulcerative Infections of the Colon, on March 18th, 23rd, and 25th at 5 P.M.

Sir Almroth Wright will deliver a special lecture before the Royal Society of Medicine on Tuesday, March 30th, at 5 P.M., on the Septic Infection of Wounds, in which he will lay before the profession the results of his investigations and research with the Expeditionary Force.

At a meeting of the Council of the Royal College of Surgeons in Ireland held on March 4th, Mr. F. Conway Dwyer, the President, being in the chair, Dr. Richard Travers Smith was elected to the Professorship of Materia Medica, Therapeutics, and Pharmacy in the Schools of Surgery.

It has been decided that the annual meeting of the British Association for the Advancement of Science shall take place in Manchester in September. Owing to war conditions, however, in place of offering the customary elaborate social hospitality, it is held preferable, while maintaining unbroken the long continuity of yearly meetings, that the proceedings this year should be restricted to the more purely scientific functions.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

AN extraordinary Comitia was held on March 4th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following communications were received:—1. From the Secretary of the Royal College of Surgeons of England, dated Feb. 15th, reporting proceedings of the Council of that College on Feb. 11th. 2. From the secretary of the Charity Commission, dated Feb. 19th, enclosing a scheme for the administration of the charity, to be called "The British Hospital for Mothers and Babies," to the managing committee of which the College consented to send a Representative Member. It was resolved that it should be left to the President to nominate a representative.

RED CROSS WORK IN DEVONSHIRE.—At present there are 21 Red Cross hospitals, which are occupied by wounded soldiers, in the county of Devon.

THE LATE DR. A. F. LEGGE.—Our Aberdeen correspondent writes: "The late Dr. A. F. Legge, who was killed in the recent riot at Singapore, was the son of the late Rev. James Wilson Legge, teacher at the Aberdeen Grammar School. He graduated M.B., Ch.B., at Aberdeen University in 1912, and was for a time house surgeon in the Aberdeen Royal Infirmary, and subsequently house physician at the Aberdeen Royal Asylum. Early last year he went to Singapore to take up duty in the asylum there, and on the outbreak of war volunteered for service with the contingent of the Malay Federated States. When in Aberdeen Dr. Legge was a prominent and popular figure, taking a worthy part in the social and athletic life of the city and university."

MEDICAL PRACTICE AT GILLINGHAM AND CHATHAM.

(FROM OUR SPECIAL COMMISSIONER.)

I HAD two reasons for going to Gillingham to see how the present national conditions affect the well-being of the medical profession. Firstly, Gillingham, though not in the borough, is really an extension of Chatham, and personally concerned in much of the naval and military activity. Next, it may be remembered that Gillingham was one of the principal storm centres in the resistance organised by a large section of the medical profession against the working of the National Insurance Act.¹

Though two years have elapsed since on the occasion of a previous visit I described the attitude of Gillingham doctors towards the National Insurance Act, the practitioners who were opposed to the Act then have remained unchanged in their attitude and still refuse to go on the panel. It was therefore necessary to import medical men to make up the Gillingham panel. But in spite of this addition to their numerical strength the medical practitioners at Gillingham are fully employed, the war circumstances producing this result. Some of them may also find that the increase of their income is not in proportion to the increase of the work they have to do, but that is another question. The medical practitioners of Gillingham have had sufficient forethought not to allow themselves to be placed in the awkward position which I described a week or two ago to have overtaken their colleagues in Great Yarmouth.² The British Medical Association suggested that the medical profession throughout the country should offer to attend gratuitously all the *necessitous* dependents of soldiers who had volunteered for the front. On August 7th, immediately after the declaration of war, at a special meeting of the London Panel Committee, the doctors on the panel were invited to express their willingness to attend, free of charge, *necessitous* dependents of reservists called to arms. This patriotic impulse, however, soon extended without anyone seeing at once whither a heedless generosity might lead. The medical practitioners of the entire kingdom, whether on the panel or not, offered their gratuitous services in this way, and instead of the dependents of the reservists it became the dependents of all those who enlisted. Nobody in those days foresaw the size of our army and no one knew anything for certain about the pay and allowances of the men. And to make the effect of miscalculation worse the word *necessitous* qualifying the dependents was withdrawn. Had that word been maintained no harm would have been done.

Gratuitous Attendance on Recruits.

Doubtless the practitioners of the three towns—Rochester, Chatham, and Gillingham—were better acquainted with the conditions of military and naval service than their London brethren, and indeed than doctors in most of the other parts of the country. In any case, they refused to attend gratuitously all the dependents of soldiers or sailors. They saw no reason why they should thus attend families who had always paid medical fees and were now better off than before the war. Every medical practitioner, panel or not, showed himself most willing to give free and devoted attention to *necessitous* dependents, and a great deal of gratuitous work is being done, but not for the well-to-do families of men who have enlisted.

It was the more necessary to draw the line somewhere as the civil medical practitioners do a great deal of gratuitous work for the army. At Gillingham no less than 10,000 soldiers were billeted on the population or lodged in any building that could be made available for such a purpose. There was no military medical staff attached to this large body of recruits, and they were, of course, liable to the ordinary sickness affecting a population of this description. When one of these recruits falls ill in a private house where he is billeted, and he or the landlord sends for a medical man, a small fee is occasionally forthcoming; but more often it is not. There is no guarantee that the medical attendant will receive anything for the trouble he has taken. Then it sometimes happens that one or more of

¹ THE LANCET, March 22nd, 1913, p. 854.

² THE LANCET, Feb. 13th, 1915, p. 342.

these young men collapse on the parade ground. In that case the nearest practitioner is sent for. Naturally he responds to the call. Yet he is never paid; often he does not receive any thanks for the trouble he has taken. In the military organisation such cases were not foreseen, and no arrangements were made either for the courtesies of professional life or for the payment of fees.

Trade and Mourning.

It may be said, with some measure of confidence, that the medical profession in the three towns is making more than it is losing in consequence of the war. The great influx of recruits naturally brings money, and the people are for the most part not only fully employed, but they are working overtime. On the other hand, many of the ships that have been sunk during the course of the war were commissioned at Chatham. The wives and families of the sailors, whose loss we deplore, live in the three towns. I was told that there were 60 widows in one street. There is every reason to hope this is an exaggeration, but that such a figure should be mentioned illustrates how much this neighbourhood has suffered from the naval disasters. Of course, if a sailor who thus gallantly lost his life had not settled his doctor's bill it is hardly likely his bereaved family will be pressed for payment. In this manner practitioners have experienced some losses, amounting, in one or two cases, to quite a considerable sum. Then there is always a tendency to exploit such situations to the detriment of the medical profession. Thus a sorrowful widow presents herself to a practitioner at Gillingham. Judging by the distress she manifested he at first inferred she had lost her husband in one of the ships recently torpedoed. He was therefore quite disposed to give her his best care gratuitously. But on inquiry he found that, though she undoubtedly was a sailor's widow, her husband died before the war began; that she was in receipt of a pension; that she was in full employment and earning good wages; and finally, that she had two sons, also fully employed, and one of them was in a position to assist her if necessary.

Loss of Time.

Medical practitioners, whether on the panel or not, have also to give a good deal of time to the signing of identification papers. To obtain a separation allowance someone in a good position must testify that the bearer is the person entitled to the money. A clergyman or a doctor is generally selected for that purpose, and as it is better known when the doctor will be found at home most persons appeal to the latter. Again, if the person is ill and cannot go to draw the money, then a medical certificate must be obtained to that effect, so that someone else may receive the money on the patient's behalf. Such applicants not only crowd the waiting room, but sometimes add to the discomfort by bringing with them the children they fear to leave alone. If a real patient calls in the middle of such a scene, and his circumstances permit, he postpones his visit and perhaps forgets to return. Sometimes total strangers will call for a certificate, and are quite surprised because a practitioner does not take them at their word. One case came to my notice of an applicant who wanted a doctor to certify she was the wife of a soldier, so that she might draw her allowance. She had only just come to the town and no one knew her; fortunately she was ultimately able to bring her husband from his regiment to Gillingham and certify she was his wife, and then the doctor signed the certificate. This meant two or three visits paid to the doctor in question and lengthy expostulations and explanations. It implied a good deal more than the professional quarter of an hour, for which no fee was offered or could be claimed.

A continuous pressure is brought to bear upon the medical men also to obtain incorrect certificates. This is especially the case on the part of soldiers who have exceeded their leave and want to prove they were ill. Then there is an idea prevalent that it suffices to be in any way connected with the army or navy to have a right to any medical practitioner's gratuitous services.

Thus it comes about that the war has entailed on the practitioners of Gillingham a good deal of unpaid work and much loss of time. On the other hand, at least in the three towns taken together, there are more money, good wages, and less unemployment, so that a large section of the population should be better able to pay the medical adviser.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted temporary commissions as Surgeons in His Majesty's Fleet: Francis Julian Richmond Cowie (dated March 2nd) and Alec George Holman (dated March 3rd).

The following appointments have been notified:—Fleet Surgeon (retired): L. Bidwell to the *Marmora*. Surgeon: H. E. R. Stephens to the *Vivid*, additional, for disposal. Temporary Surgeons: W. P. Cowper to the *Vivid*, additional, for Plymouth Hospital; J. Morrison to the *Vivid*, additional, for R.N. Barracks; J. F. Quigley to the *Vivid* and J. Judson to the *Pembroke*, both additional, for disposal; F. J. R. Cowie and A. G. Holman, both to the *Victory*, additional, for disposal; E. I. Parry to the *Roxburgh*; and W. A. Mills to the *Indus*.

ROYAL NAVAL VOLUNTEER RESERVE.

The following appointments have been notified:—Surgeons: W. J. A. Quine to the *Collingwood*; and D. A. Macpherson to the *Vivid* and H. S. Reid to the *Victory*, both additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Major Henry M. Nicholls to be Lieutenant-Colonel (dated March 1st).

The undermentioned to be temporary Captains:—Dated Feb. 15th: Arthur Corrie Keep. Dated Feb. 16th: George Stoker. Dated March 5th: Temporary Lieutenant Arthur Martin Leake, V.C.

The undermentioned to be temporary Lieutenants:—Dated Dec. 1st, 1914: William Bradshaw Davy and John Ferguson Hutton. Dated Feb. 1st: John Anthony Freeman Hatch. Dated Feb. 2nd: George Alexander Shiel. Dated Feb. 3rd: Matthew Hamilton Fleming. Dated Feb. 10th: Frederick Andre Mills, William Tregonwell Collier, and Claude William Scott Saberton. Dated Feb. 11th: Wallace Charles George Ashdowne. Dated Feb. 12th: John Telfer Smeall, Edward Brice Cooper Mayrs, and John Joseph Dunne. Dated Feb. 13th: Harold Arthur Rowell and Ifan Septimus James. Dated Feb. 14th: Richard Desmond Fitzgerald, Louis Laurance McKeever, and Augustine Sargood Fry. Dated Feb. 15th: Reginald Lionel Ernest Downer, Henry Williams Beresford Danaher, Edward Samuel Gooddy, Harold Denny Duke, Carl Frederick Anthonisz, Charles William Donald, Burgess Barnett, John Harold Wrightson, Henry Joseph Milligan, William Richard George Hamilton, Ninian Edward Miles Home-Hay, David Carnegie Alexander, Alexander Jamieson, Ernest Cromwell Peake, Harold Ackroyd, Hugh Watson Fox, Charles Spencer Palmer, Sydney Gordon Tippet, Arthur Ryland Chavasse, George William Davis, Frank Gravely, Gavin Muir, Frank Gardyne Milne, David Anderson Duncan Kennedy, William Harold Butler, John Perry Walker, Thomas Barrington McKee, Meredith Milton Townsend, George Mahony Mayberry, Gerald Davenant Shann, and Frederic Charles Barlow. Dated Feb. 16th: John Kirton, Hayden Peters, William Frank Morgan, Edward Johnson, Robert Condry, Ernest Bosdin Leech, and Ernest Wells Witham.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. R. Elliot, R.A.M.C., has been appointed Assistant Director of Medical Services in the 4th (Quetta) Division as a temporary arrangement. Lieutenant-Colonel H. Fooks has been appointed temporary Assistant Director of Medical Services, 6th (Poona) Divisional Area and the Bombay Brigade. Lieutenant-Colonel R. J. Windle, R.A.M.C., has been appointed temporarily to the charge of the Poona Brigade. Lieutenant-Colonel C. H. Hale, R.A.M.C., has been appointed temporary Assistant Director of Medical Services at Abbottabad and Sialkot Brigades. Lieutenant-Colonel S. C. Philson, R.A.M.C., has been appointed temporary Assistant Director of Medical Services, Presidency Brigade. Major M. Corry has been appointed officiating Chief Medical Officer, Delhi Province, with effect from Dec. 1st, 1914. Lieutenant-Colonel F. J. Dewes has been appointed to the Medical Charge of Depot, 28th Punjab, Reserve Centre, 3rd, 21st, and 22nd Mule Cadres, with effect from Nov. 9th, 1914; to the Depot, 27th Punjab, with effect from Nov. 10th; and the Depot, 25th Punjab, with effect from Dec. 23rd, in addition to his own duties. Major L. E. Gilbert has been appointed to the officiating Medical Charge of the 42nd Deoli Regiment and charge of the Cantonment General Hospital, Lahore Cantonment, with effect from Jan. 26th, vice Major D. S. O'Keefe.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Royal Army Medical Corps.

John Dillon MacCormack to be Lieutenant (on probation). Lieutenant John Brumwell resigns his commission on appointment to the Royal Naval Volunteer Reserve.

TERRITORIAL FORCE.

Army Medical Services.

Lieutenant-Colonel Henry George Falkner, from Attached to Units other than Medical Units, to be Assistant Director of Medical Services, Northumbrian (Reserve) Division, with the rank of Colonel (temporary).

Royal Army Medical Corps.

Yorkshire Mounted Brigade Field Ambulance: Captain John Hepple to be Major (temporary).

2nd East Anglian Field Ambulance: Captain Rees Phillips to be Major (temporary). Frederick George Sharp to be Lieutenant.

3rd West Lancashire Field Ambulance: Walter Richards Stephen to be Lieutenant.

1st London (City of London) Field Ambulance: Lieutenant Martin B. H. Stratford, from Attached to Units other than Medical Units, to be Lieutenant.

3rd London (City of London) Field Ambulance: Lieutenant Robert W. A. Salmond, from 1st (City of London) Field Ambulance, to be Lieutenant.

3rd North Midland Field Ambulance: Thomas Lovett to be Lieutenant.

1st Northumbrian Field Ambulance: Kirton Ivor Seager Smith to be Lieutenant.

3rd West Riding Field Ambulance: John Stratford Hall to be Lieutenant.

1st Welsh Field Ambulance: John Sloan Tomb to be Lieutenant.

1st London (City of London) General Hospital: Lieutenant-Colonel Walter A. Atkinson resigns his commission owing to ill-health, and is granted permission to retain his rank and to wear the prescribed uniform.

1st East Anglian Field Ambulance: Lieutenant Thomas Vicars Oldham, from Attached to Units other than Medical Units, to be Lieutenant.

2nd West Lancashire Field Ambulance: Sydney Sharples (late Lieutenant, 2nd West Lancashire Brigade, Royal Field Artillery) to be Lieutenant.

2nd West Riding Field Ambulance: Benjamin Holroyd to be Lieutenant.

1st Eastern General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: Wilson Tyson and William Burton Marshall.

3rd Southern General Hospital: Robert Garner Lynam to be Captain, whose services will be available on mobilisation.

1st Northern General Hospital: Major William G. Richardson to be Lieutenant-Colonel. Captain Daniel W. Patterson to be Major.

Eastern Mounted Brigade Field Ambulance: James Lamberton to be Lieutenant.

1st Home Counties Field Ambulance: Richard Austin Freeman to be Lieutenant.

3rd Home Counties Field Ambulance: Captain Edwin A. Houchin to be Major (temporary).

1st East Lancashire Field Ambulance: Transport Officer and Honorary Captain George R. Wattleworth is granted the honorary rank of Major. To be Lieutenants: John Bruce (late Surgeon-Captain, 3rd Volunteer Battalion, The Lincolnshire Regiment) and William Lonsdale Cockcroft.

4th London General Hospital: To be Lieutenants: Arthur Fitzwilliam Comyn and George Arthur Ewart.

1st Scottish General Hospital: The undermentioned to be Captains, whose services will be available on mobilisation: John Taylor and Thomas Hood Wilson Alexander.

Sanitary Service: Major Peter Caldwell Smith to be Lieutenant-Colonel.

Attached to Units other than Medical Units.—Captain David R. Taylor to be Major. To be Captains: John Murdoch (late Captain, 7th Battalion Princess Louise's (Argyll and Sutherland Highlanders) and Lieutenant Arthur E. Ridsdale. To be Lieutenants: Lieutenant Alfred Errol Delgado, from 1st East Anglian Field Ambulance; Charles Joshua Fox (late Lieutenant, 13th (County of London) Princess Louise's Kensington Battalion, The London Regiment); and William Horton Dale.

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Major William Owen Evans, attached to Units other than Medical Units, resigns his commission on account of ill-health, and is granted permission to retain his rank and wear the prescribed uniform.

Captain William J. Foster, from the 3rd Southern General Hospital, to be Captain.

DEATHS IN THE SERVICES.

The death of Dr. Frederick Laing Norris, late chief Government medical officer, Antigua, British West Indies, is announced.

Major C. E. Fleming, R.A.M.C., on March 2nd, in his 41st year. During the South African War he volunteered

as a civil surgeon and subsequently received a commission in the Royal Army Medical Corps. He was promoted Captain in 1903 and Major in 1912. In the South African War he took part in the operations in the Transvaal (Queen's medal with four clasps, and King's medal with two clasps).

THE INDIAN AMBULANCE GAZETTE.

It is interesting and eminently satisfactory to note that in spite of the numerous appeals for war and relief funds by other societies the Indian St. John Ambulance Association has supplied in the short period of three months gifts to hospitals representing 2½ lakhs of rupees (or £10,000), while it has organised many voluntary aid detachments, and been active in other directions for the benefit of the sick and wounded. The January issue of the *Gazette* contains much interesting matter, including an account of the Origin and Development of the Red Cross; a lecture on the Laws and Customs of War, so far as they relate to the Sick and Wounded, by Major W. H. M. Spiller, R.A.M.C.; and a thoughtful address by Major-General May, C.B., C.M.G., on the Progress of the War.

RETIRED NAVAL SURGEONS.

In a recent number of the *Military Surgeon* (Chicago, U.S.A.) there is an interesting article by Surgeon (Fleet-Surgeon, that is) C. J. Decker, U.S. Navy, retired, on the employments suitable for medical officers who have retired. The problem introduced has solved itself for this country for the time being, the war demanding the help of all, but Surgeon Decker's views are none the less worth recording for future use. He holds that retired medical officers must find work or "feel lost and stay lost." He strongly dissuades retired officers from trying to become superintendents of civil hospitals, a line of work which in the United States is rapidly becoming a separate profession, and which in this country is becoming more organised and special. As for himself, he joined a large electrical firm and is concerned in elaborate experiments aiming to sterilise by the X rays the ova of beetles in tobacco and cereals as a commercial proposition. Further, he is working on a scheme for instantly killing gonococci by touching them with ultra-violet light (the difficulty seems to be to get the ultra-violet light to the gonococcus), and he has learned how to destroy the life of bacteria and certain other cells by high-frequency currents. The gist of the advice given is that the retired naval medical officer should turn towards scientific research for employment, but the conditions in the United States are obviously more favourable for such an employment of his talents than they would be in this country under existing conditions. The research energies of a man no longer young, who has not been in touch with the actual scientific work of any school for a long time, and has had but rare opportunities of acquiring new laboratory experience or perfecting his bench technique, would not find many outlets or command much remuneration. The career is far the most valuable, suitable, and agreeable one that could fall to the retired naval surgeon's lot, but it would require, save in special instances, a great deal of labour on his part to command success at it.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 9024 births and 7040 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had been 18.9, 20.7, and 20.4 per 1000 in the three preceding weeks, further fell in the week under notice to 20.2 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 19.5, against a corresponding rate of 20.2 per 1000 in London. The annual death-rate last week ranged from 9.6 in Wimbledon, 10.3 in Edmonton, 10.6 in Hornsey, 12.5 in Leyton, and 13.1 in Southend-on-Sea, to 23.3 in West Hartlepool, 30.2 in Halifax, 30.7 in Cambridge and in Darlington, 31.2 in Bath, and 34.3 in Stockton-on-Tees.

The 7040 deaths from all causes were 49 fewer than the number recorded in the previous week, and included 618 which were referred to the principal epidemic diseases, against numbers increasing from 511 to 617 in the three preceding weeks. Of these 618 deaths, 331 resulted from measles, 110 from whooping-cough, 71 from infantile diarrhoeal diseases, 64 from diphtheria, 32 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.8 per 1000, and coincided with that recorded in the previous week. The deaths attributed to measles, which

had been 207, 263, and 306 in the three preceding weeks, further rose to 331 last week, and caused the highest annual death-rates of 3.1 in Tottenham, 3.2 in West Hartlepool, 3.3 in Salford, 3.6 in St. Helens, 3.8 in Wolverhampton, 3.9 in Gateshead, 4.0 in Rotherham, 4.4 in Darlington and in Stockton-on-Tees, 5.7 in Northampton, and 7.2 in Cambridge. The deaths referred to whooping-cough, which had been 125, 135, and 111 in the three preceding weeks, were 110 last week; the highest death-rates from this disease were 1.2 in Brighton, in Reading, in Blackburn, and in Merthyr Tydfil, 1.5 in Bath, 1.6 in St. Helens, 2.0 in Aberdare, 2.1 in Bootle, and 2.2 in Ealing. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 70, 80, and 75 in the three preceding weeks, further fell to 71 last week, and included 16 in London, 6 in Liverpool, and 5 in Birmingham. The deaths attributed to diphtheria, which had been 66, 80, and 72 in the three preceding weeks, further declined to 64 last week, of which 16 occurred in London, 8 in Manchester, 5 in Liverpool, and 3 each in Stoke-on-Trent and Birmingham. The deaths referred to scarlet fever, which had increased from 22 to 38 in the four preceding weeks, fell to 32 last week; 7 deaths were registered in London, 4 in Birmingham, 3 each in Manchester and Newcastle-on-Tyne, and 2 each in Tottenham and Nottingham. The fatal cases of enteric fever, which had been 16, 17, and 13 in the three preceding weeks, further fell to 10 last week, and included 3 in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 3041 in the 14 preceding weeks, had further decreased to 2943 on Saturday last; 298 new cases were admitted during the week, against 368, 295, and 302 in the three preceding weeks. These hospitals also contained on Saturday last 1569 cases of diphtheria, 240 of measles, 63 of enteric fever, 15 of whooping-cough, and 5 of small-pox. The 1781 deaths from all causes in London were 51 fewer than in the previous week, and corresponded to an annual death-rate of 20.6 per 1000. The deaths referred to diseases of the respiratory system, which had been 455, 459, and 476 in the three preceding weeks, fell to 468 in the week under notice, but were 208 above the number registered in the corresponding week of last year. The deaths from influenza numbered 48, against numbers rising from 44 to 83 in the four preceding weeks.

Of the 7040 deaths from all causes in the 96 towns 197 resulted from different forms of violence and 512 were the subject of coroners' inquests, while 1929 occurred in public institutions. The causes of 81, or 1.2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Bristol, Bradford, Portsmouth, Salford, and in 44 other smaller towns. Of the 81 uncertified causes, 16 were registered in Liverpool, 13 in Birmingham, 5 in Preston, 4 each in Stoke-on-Trent and Darlington, and 3 each in St. Helens, Rochdale, and Blackpool.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1236 births and 1043 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had declined from 24.1 to 21.2 per 1000 in the four preceding weeks, rose to 23.2 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 22.9, against 19.5 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 12.9 in Clydebank, 14.7 in Perth, and 15.3 in Kirkcaldy, to 27.4 in Greenock, 33.4 in Falkirk, and 40.6 in Dundee.

The 1043 deaths from all causes were 87 in excess of the number in the previous week, and included 145 which were referred to the principal epidemic diseases, against 139 and 131 in the two preceding weeks. Of these 145 deaths, 91 resulted from whooping-cough, 21 from measles, 15 from diphtheria, 9 from scarlet fever, 7 from infantile diarrhoeal diseases, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3.2, against 1.8 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 81, 97, and 89 in the three preceding weeks, rose to 91 last week, and included 47 in Glasgow, 25 in Dundee, 8 in Edinburgh, and 3 in Greenock. The deaths referred to measles, which had been 11, 13, and 8 in the three preceding weeks, rose to 21 last week, of which 10 occurred in Glasgow and 9 in Dundee. The fatal cases of diphtheria, which had been 6, 8, and 11 in the three preceding weeks, further rose to 15 last week, and included 6 in Glasgow, 5 in Edinburgh,

and 2 in Aberdeen. The deaths attributed to scarlet fever, which had been 8, 10, and 11 in the three preceding weeks, fell to 9 last week; 4 deaths were recorded in Glasgow and 2 in Clydebank. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had declined from 16 to 10 in the four preceding weeks, further fell to 7 last week, and comprised 2 each in Glasgow, Edinburgh, and Aberdeen, and 1 in Dundee. The 2 fatal cases of enteric fever belonged to Glasgow.

The deaths referred to diseases of the respiratory system, which had declined from 302 to 235 in the four preceding weeks, rose to 264 in the week under notice, and were 138 in excess of the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 34, against 26 and 34 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 663 births and 636 deaths were registered during the week ended Saturday, March 6th. The annual rate of mortality in these towns, which had increased from 24.0 to 27.6 per 1000 in the six preceding weeks, fell to 27.4 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 26.0, against corresponding rates of 19.5 and 22.9 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 33.4 in Dublin (against 20.6 in London and 21.8 in Glasgow), 26.9 in Belfast, 26.5 in Cork, 20.2 in Londonderry, 20.3 in Limerick, and 22.8 in Waterford, while in the 21 smaller towns the mean rate was 20.2 per 1000.

The 636 deaths from all causes were 6 fewer than the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 36 and 38 in the two preceding weeks. Of these 36 deaths, 11 resulted from infantile diarrhoeal diseases, 10 from whooping-cough, 8 from measles, 4 from scarlet fever, 2 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against corresponding rates of 1.8 and 3.2 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 13, 10, and 5 in the three preceding weeks, rose to 11 last week, and comprised 10 in Dublin and 1 in Belfast. The deaths referred to whooping-cough, which had been 17, 12, and 18 in the three preceding weeks, fell to 10 last week, of which 6 were recorded in Dublin, 3 in Belfast, and 1 in Larnie. The fatal cases of measles, which had been 5, 6, and 8 in the three preceding weeks, were again 8 last week, and comprised 5 in Belfast, 2 in Portadown, and 1 in Dublin. The 4 deaths attributed to scarlet fever, of which 3 belonged to Belfast, were equal to the average in the earlier weeks of the quarter. The 2 deaths from diphtheria were recorded in Dublin and Belfast respectively, and the fatal case of enteric fever in Belfast.

The deaths referred to diseases of the respiratory system, which had been 182, 168, and 187 in the three preceding weeks, were 188 in the week under notice. Of the 636 deaths from all causes, 190, or 30 per cent., occurred in public institutions, and 7 resulted from different forms of violence. The causes of 26, or 4.1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 1.2 per cent.

MEAT INSPECTION IN DEVONSHIRE.—The medical officer of health of the Torrington rural district, in his annual report for 1913, refers to the fact that at present there is no systematic inspection of meat in the district, and adds that in the few districts where a regular system of such inspection obtains evidence is found that a considerable amount of unsound flesh is put on the market month after month.

BRISTOL ROYAL HOSPITAL FOR CHILDREN AND WOMEN.—The annual meeting of the subscribers of this institution was held on March 2nd. The medical report stated that during 1913 the in-patients numbered 1121 children and 109 women; 3729 children and 1316 women were treated in the out-patient department, and 843 patients in the dental department. The financial statement showed the income amounted to £4714, and there was an unfavourable balance of £850. £2000 was recently bequeathed to the charity by the late Lady Greville Smith, to whom the hospital also owes the block of isolation buildings.

Correspondence.

"Audi alteram partem."

THE PROPHYLACTIC TREATMENT OF
PUERPERAL INFECTION BY DILUTE
SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—It has afforded us much pleasure to read in a letter by Dr. J. L. Moir in your issue of Jan. 16th of the favourable results he has obtained by the dilute sulphuric acid treatment in the prophylaxis of puerperal infection, because they still further afford evidence of the real value of this remedy in pyogenic infections. The subject of puerperal infection is such an important one that the extension of this mode of treatment as a prophylactic measure should be a valuable step forward.

We now draw special attention to the alteration in strength of acid sulphuric. dil. as the official preparation in the new Pharmacopœia, 1914, because the strength has been reduced by 26·7 per cent. It thus becomes necessary to point out that the dose in this treatment must be materially increased to be equivalent to the 20–30 minim doses of the acid sulphuric. dil. of the old Pharmacopœia. The dose should now be 25–35 minims. We cannot help feeling that great benefit might be derived by the administration of this remedy to the wounded in the present European War, as many of the infected wounds would, we believe, run a much more favourable course; indeed, it would be better if the treatment were adopted as a routine prophylactic measure. Sulphuric acid is so inexpensive, and so easily obtained, that even for such an extensive use the question of expense is negligible, and it has the additional advantage of acting as a direct tonic. Dr. Moir also raises an interesting point when he speaks of its effect in increasing the resisting power of the tissues to infection. This view seems to be borne out by experiments already conducted, but the question as to whether diminution of the alkalinity of the blood is responsible for the increase of the resisting power yet remains to be decided. The experimental work involved in the investigation of this subject is necessarily long and tedious and is still being conducted.

We are, Sir, yours faithfully,

J. REYNOLDS.

London, S.W., March 8th, 1915. RUSSELL J. REYNOLDS.

OPEN-AIR TREATMENT OF ACUTE
SPECIFIC FEVERS.

To the Editor of THE LANCET.

SIR,—With regard to the open-air treatment of measles and Mr. J. Tertius Clarke's letter in THE LANCET of March 6th, I should like to bear my testimony to the effect of ventilation and light in diminishing the mortality of this disease. In Woolwich the death-rate from measles between 1891 and 1900 was 0·59. During the past four years it has been reduced to 0·19, or about one-third of what it formerly was. There is no question here of diminished prevalence, although if the death-rate was calculated on the number of children living at ages 0 to 5 the fall would not be so great as it appears, but even then it would be very considerable.

About the year 1900–01 the practice was commenced of distributing at all houses where cases of measles were notified by school teachers instructions as to keeping the windows open and blinds up, and keeping the child clean. To the adoption of these instructions I mainly attribute the fall of mortality. No doubt if more thorough open-air treatment was adopted the mortality might be still further reduced.—I am, Sir, yours faithfully,

SIDNEY DAVIES,

Medical Officer of Health.

Public Health Department, Woolwich, March 8th, 1915.

A GRIEVANCE.

To the Editor of THE LANCET.

SIR,—Most of the Insurance Committees throughout England are only paying 1s. a head on account for last quarter owing to the action of the Insurance Commissioners in preventing the societies sending lists of those members who have joined the army or navy to the committees concerned. This has resulted in a great many panel doctors being placed in very awkward financial straits at a time when credit is almost impossible to obtain and when many of us who have been called up were counting on the money thus held up to pay our substitutes. It is preposterous to suggest that even a quarter of the 8d. in addition to the 4d. already withheld will be necessary to balance the removals from our lists.

Now another grumble at the action of the War Office in paying officers with temporary commissions several shillings a day more than Special Reservists and Territorials who have taken the trouble to qualify for commissions in times of peace, who, moreover, have established practices and homes to keep up, whereas very many of the temporaries are young men with no responsibilities whatever. I know it will be said we did it with our eyes open. But we did not bargain for the War Office collaring practically three-quarters of the men we were looking to to fill our places when we were called up and thus making locums so expensive and unobtainable that in my own case I have had to pay £150 a year more than I get as army pay. Goodness knows, I do not wish to grumble, but I feel that I am voicing the opinion of practically all Reservist and Territorial medical officers.

I enclose my card and wish to remain,

Yours faithfully,

ANONYME.

THE SHORTAGE OF LOCUM-TENENTS AND
RESIDENT MEDICAL OFFICERS.

To the Editor of THE LANCET.

SIR,—I may start with remarking that I have nothing to say against any medical agent or the secretary of any hospital. I have dealt once only with each of them respectively, and the agent kindly reduced his fees by one-half on my asking for consideration in special circumstances, and this although he had my signature to his full terms. The secretary to the hospital made my life there as comfortable as it possibly could be. I am a middle-aged practitioner now, and I remember both men with gratitude. I would like, however, to make a few remarks on what occurs outside the sphere of the agent or hospital secretary. The main reason for going into a hospital is to be taught. In many cases the staff are too busy to teach much, and valuable time is wasted. The agents are business men and quite fairly and at a

moderate commission cater to provide assistants or locum-tenents drawn largely from the impecunious members of the profession, in many cases too poor to buy or start a practice. This is the beginning (and it may be the end) of a man's professional life, and may in favourable circumstances (for them) like the present unfortunate war command an income of £5 or £6 a week. At other times if under, say, 45 a sum of £4 may be earned weekly. An oldish man is not wanted, and indeed could not stand the strain of a "farmed-out" practice. Unless the newspapers are lying grossly these sums are the wages of good artisans in each case, and that for say an eight or ten hours day. Another service which is grumbling is the asylum. Now it was well known in every medical school that suitable men were harder to find for that than any other service. Tempting salaries were offered to juniors to accept the minor posts and they found perhaps after a dozen years of waiting they were £70 or £100 a year better off. They had to live in some cases under Prussian discipline, were prohibited from marriage, cut off from all the social amenities of life unless in the rare instances where they became superintendents. Their condition then changed from servility to that of an autocrat in their own institution. Will any man in his senses educate a son at, say, an outlay of £1000 for a life like this? I think that sum might be much more advantageously employed in other ways, and so think many parents.

Feb. 27th, 1915.

I am, Sir, yours faithfully,

A. B. C.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Local Government Board and the Longford County Infirmary.

THE Local Government Board has communicated to the governors of the Longford County Infirmary its decision in regard to the proposal of the governors to dismiss Mr. Mayne, surgeon to the infirmary, for his action in refusing permission to another surgeon to operate in the infirmary. The Board refuses its assent to the dismissal of Mr. Mayne, who "acted within his discretionary powers under Article 11 of the Rules and Regulations of the County Infirmary."

Professorship of Materia Medica.

The President, Vice-President, and Council of the Royal College of Surgeons in Ireland have elected Dr. R. Travers Smith, F.R.C.P. Irel., to the chair of Materia Medica, Therapeutics, and Pharmacology in the School of the College.

"Medical Certifiers" and the Irish Medical Profession.

The recent appointment by the Insurance Commissioners of a number of "medical certifiers" is rousing bitter opposition in the medical profession in all parts of Ireland. A meeting of the medical men of Cork decided unanimously that all practitioners of the city should be called on to bind themselves to refuse to meet any certifier. Similar action has been taken in Co. Wexford, Co. Tyrone, and other districts. In Co. Cavan the position has been somewhat anomalous. The Commissioners induced some six practitioners of the county to accept posts as certifiers. A meeting of the local medical committee was

summoned to consider their action. Owing to short notice and very severe weather only 11 members attended the committee. The six certifiers thus formed a majority and passed a resolution approving of their own conduct. All the other practitioners in the county—some 21 in number—have since formally repudiated the action of the committee, and demanded the abolition of the system of whole- or part-time certifiers.

The Belfast Literary Society.

Sir John Byers has been elected President of the Belfast Literary Society for 1915-16, a position he held before in the year 1885-86. It is one of the oldest institutions in Belfast, having been founded in 1801.

March 9th.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

DURING the week the Fund has progressed well, and it will be seen by the statement of subscriptions that substantial contributions have been received from Canada and from Denmark. The Danish Union of Doctors has sent through Dr. Christophersen a second handsome subscription to the Fund of Kr.3488, equivalent to £178 8s. 3d. We shall publish a detailed list of the subscriptions in a later issue. The Canadian Committee for the Relief of the Belgian Medical and Pharmaceutical Professions forwards through Dr. J. Gibb Wishart, the President of the Ontario Medical Association, a further donation of \$1000. The previous two generous contributions of this Committee, amounting to over £300, were credited to the Ontario Medical Association in error.

We publish this week a fourth list of subscriptions to the Fund which have been received by the treasurers of the Irish Branch, and a detailed list of the Scottish subscribers. When these large collections, and other subscriptions still remaining in the hands of local secretaries, are added to what has been received by the treasurer, Dr. Des Vœux, the total Fund will amount now to more than £10,000.

Distribution has proceeded regularly, and the applicants for assistance have shown themselves, personally or through Dr. Clément Philippe, very appreciative of the help rendered. The distribution of clothes now takes place from the Wesleyan Training College, 130, Horseferry-road, London, S.W., where Mrs. Leonard Colebrook, Mrs. de Bless, and Count Dru are rendering every help.

THE SCOTTISH FUND.

The following are the subscriptions making up a total of £888 5s. 6d. already in the hands of Dr. R. Cranston Low, Dr. Walker Downie, and Mr. J. Rutherford Hill, the treasurers and secretaries of this fund:—

	£	s.	d.		£	s.	d.
Sir Alexander R. Simpson...	20	0	0	Dr. Philip C. Borrowman	1	1	0
Dr. Robert Thin ...	5	5	0	Dr. Hill Buchan ...	1	1	0
Dr. Byrom Bramwell ...	5	0	0	Dr. Alex. M. Easterbrook	1	1	0
Dr. Robert McKerchar...	1	1	0	Mrs. Legat ...	1	1	0
Dr. Norman Walker ...	5	5	0	Dr. Barbour ...	2	0	0
Dr. Sargood Fry ...	2	2	0	Mr. Dwight Day ...	2	0	0
Mr. A. Linton Logan ...	1	0	0	Dr. F. W. N. Haultain	10	0	0
Dr. T. P. Stewart ...	2	2	6	Dr. J. R. Hamilton ...	5	0	0
Dr. Robert Stirling ...	2	2	0	Dr. Andrew C. Keay ...	4	12	6
Dr. W. P. Dester ...	0	10	0	Dr. Wm. Russell ...	10	10	0
Miss Aylett ...	0	5	0	Dr. R. Dods Brown ...	1	1	0
Miss Nelson ...	0	5	0	Dr. Melville Dunlop ...	3	3	0
Miss M. W. Fleming ...	15	0	0	Association of School Medical Officers of Scotland	5	5	0
Miss K. I. Fleming ...	15	0	0				

£ s. d.		£ s. d.		£ s. d.		£ s. d.	
Dr. Harry Rainy ...	5 5 0	Prof. T. K. Monro ...	5 5 0	Mr. J. P. Gilmour ...	1 1 0	Mr. Thos. Dunlop ...	0 10 6
Dr. John Orr ...	2 2 0	Dr. John Barlow ...	5 5 0	Mr. W. S. Glass ...	1 1 0	Mr. Martin Meldrum ...	0 10 6
Dr. Oliphant Nicholson ...	3 3 0	Dr. D. Clark Laird ...	1 1 0	Mr. James Henry ...	1 1 0	Dr. T. Paterson ...	0 10 6
Dr. John Thomson ...	5 5 0	Prof. Stockman ...	5 0 0	Mr. J. Ruthertford Hill ...	1 1 0	Dr. W. H. Parr ...	0 10 6
Dr. W. Hall Calvert ...	0 10 6	Dr. A. Maitland Ramsay ...	5 5 0	Mr. James Jack ...	1 1 0	Bonnybridge Pharmacy Co. ...	0 10 6
Dr. W. M. Selby ...	0 10 6	Dr. Walker Downie ...	5 5 0	Mr. John McCowan ...	1 1 0	Mr. James Adamson ...	0 10 0
Dr. G. Minto Johnston ...	1 1 0	Dr. Geo. Dickson ...	0 10 0	Mr. J. D. MacLeod ...	1 1 0	Mr. Thos. Beattie ...	0 10 0
Dr. T. J. Thyne ...	3 3 0	Dr. Wm. G. Dun ...	1 1 0	Mr. J. McNaughton ...	1 1 0	Mrs. R. W. Brown ...	0 10 0
Dr. Alex. Hendry ...	1 1 0	Dr. Wm. R. Jack ...	2 2 0	Mr. J. B. Mitchell ...	1 1 0	Mr. John Bunson ...	0 10 0
Dr. Jas. Wilson ...	2 2 0	Dr. James McQueen ...	1 1 0	Mr. David Moir ...	1 1 0	Mr. W. Fraser ...	0 10 0
Prof. J. C. McKendrick ...	1 1 0	Dr. James Cairncross ...	1 0 0	Mr. James Nesbit ...	1 1 0	Mr. John Gilmour ...	3 10 0
Dr. John Playfair ...	5 5 0	Dr. Archd. McLean ...	1 1 0	Mr. Wm. Ogston ...	1 1 0	Mr. A. Hill Jeffrey ...	0 10 0
Dr. Thomas Fraser ...	5 0 0	Dr. James Craig ...	1 1 0	Mr. Balfour Reekie ...	1 1 0	Mr. John Muir ...	0 10 0
A Comrade ...	5 5 0	Dr. Geo. McIntyre ...	5 5 0	Mr. J. R. Reith ...	1 1 0	Mr. W. A. Russell ...	0 10 0
Dr. Allan Jamieson ...	10 0 0	Dr. Robt. Jardine ...	2 2 0	Mr. D. S. Robertson ...	1 1 0	Mr. C. M. Smith ...	0 10 0
Dr. J. W. Martin ...	0 10 6	Dr. Robt. Perry ...	1 1 0	Mr. Chas. Simpson ...	1 1 0	Mr. E. Steven ...	0 10 0
Dr. A. Ogston ...	1 1 0	Dr. David Yellowlees ...	10 10 0	Mr. Alex. Walker ...	1 1 0	Mr. Thos. Yule ...	0 10 0
Dr. F. D. Boyd ...	4 4 0	Dr. J. R. C. Greenlees ...	1 0 0	Mr. Thos. Wilson ...	1 1 0	Anonymous ...	0 5 0
Dr. Edwin Matthew ...	5 0 0	Dr. Archd. Templeton ...	0 10 6	Mr. John Cumming ...	1 0 0	Mr. J. McMaster ...	0 5 0
Dr. James Gowans ...	0 10 0	Dr. W. S. Paterson ...	1 1 0	Mr. A. Glen ...	1 0 0	Mr. J. C. Semple ...	0 5 0
Dr. R. M. Ronaldson ...	1 1 0	Dr. Marguerite Wilson ...	0 6 0	Mr. James Lennox ...	1 0 0	Mr. F. F. Stewart ...	0 5 0
Dr. A. Murray Drennan ...	2 2 0	Dr. Rob. N. White ...	1 1 0	Rev. R. McIntosh ...	1 0 0	Dr. A. Mercer Watson ...	0 5 0
Dr. Ian Struthers ...	1 1 0	Dr. David Glen ...	1 1 0	Mrs. McIntosh ...	1 0 0	Mr. A. S. Weir ...	0 2 6
Stewart ...	1 1 0	Dr. Jas. McEwan ...	5 0 0	Mr. J. L. Reid ...	1 0 0	Miss C. J. Smith ...	0 2 6
Dr. R. D. Hotchkiss ...	1 1 0	Dr. J. Maxtone Thom ...	1 1 0	Mr. W. R. Craig ...	0 10 6	Mr. W. M. Smith ...	0 2 6
Dr. A. Crum Brown ...	5 5 0	Dr. Johnston Macfie ...	1 1 0	Mr. James Crombie ...	0 10 6		
Dr. Frances M. Harper ...	2 2 0	Dr. David McNicol ...	0 10 0				
Major C. L. Williams ...	1 1 0	Principal Yule Mackay ...	2 2 0				
I.M.S. ...	1 1 0	Dr. Wm. Lawson ...	1 1 0				
Mrs. Low ...	1 1 0	Dr. John Macintyre ...	3 3 0				
Dr. F. F. Jones ...	0 5 0	Dr. A. T. Thomson ...	0 10 6				
Dr. Macdonald ...	2 2 0	Dr. J. M. McGill ...	0 10 0				
Dr. Henry H. Roberts ...	1 1 0	Lieut. K. B. Aikman ...	2 2 0				
Dr. C. M. Robertson ...	5 5 0	R.A.M.C. ...	2 2 0				
Dr. Claude B. Ker ...	3 3 0	Dr. Eliz. T. Gilchrist ...	5 5 0				
Dr. Aitchison Robertson ...	1 1 0	Dr. Daisy A. McGregor ...	5 5 0				
Dr. G. C. Anderson ...	1 1 0	Dr. John L. Howie ...	1 1 0				
Prof. Ashley MacKintosh ...	10 10 0	Dr. R. Murray Lyon ...	2 2 0				
Dr. Cranston Low ...	1 1 0	Dr. Richard C. More ...	2 2 0				
Dr. Robert Stirling ...	3 3 6	Dr. Lauder R. Oswald ...	3 3 0				
(2nd contribution) ...	3 3 6	Dr. David McKail ...	2 2 0				
Dr. Stanley Fenwick ...	1 1 0	Dr. A. Galbraith Faulds ...	1 1 0				
Dr. Lovell Gulland ...	10 10 0	Dr. Jas. Macartney ...	1 1 0				
Dr. Keppie Paterson ...	3 3 0	Dr. Ebenezer Duncan ...	5 5 0				
Dr. A. Macnaughton ...	1 1 0	Dr. John Adams ...	10 10 0				
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Dr. Bruce McMorland ...	0 10 6	Dr. Rob. Fullarton ...	2 2 0				
Dr. Harriet McCloghry ...	1 1 0	Dr. John Patrick ...	1 1 0				
Royal College of Physi- cians of Edinburgh ...	105 0 0	Dr. David Watson ...	1 1 0				
Royal Colleges' Golf Club, Edinburgh ...	10 10 0	Dr. A. A. Gray ...	2 2 0				
Mr. J. W. B. Hodsdon ...	21 0 0	A. McL. ...	1 1 0				
Mr. Francis M. Caird ...	10 10 0	Dr. Arthur Innes ...	0 10 6				
Mr. J. M. Cotterill ...	5 5 0	Dr. G. Balfour Marshall ...	3 3 0				
Dr. Charles W. MacGillivray ...	5 5 0	Dr. J. Grant Andrew ...	2 2 0				
Mr. David Wallace ...	5 5 0	Dr. Maud Bennett ...	0 10 0				
Dr. Logan Turner ...	20 0 0	Dr. A. W. Hannington ...	1 1 0				
Dr. George Mackay ...	5 0 0	Dr. W. S. Syme (addi- tional) ...	1 1 0				
Mr. Harold J. Stiles ...	21 0 0	Dr. Nigel Stark ...	1 1 0				
Dr. R. McKenzie Johnston ...	3 3 0	Dr. R. C. Robertson ...	2 2 0				
Mr. J. W. Dowden ...	5 5 0	Dr. Wm. A. Muir ...	2 2 0				
Dr. John M. Bowie ...	10 10 0	Dr. John Sloan ...	1 1 0				
Dr. J. H. Gibbs ...	5 5 0	Dr. R. M. Buchanan ...	1 1 0				
Mr. Alexis Thomson ...	2 2 0	Dr. J. Wilson Cameron ...	1 1 0				
Mr. D. P. D. Wilkie ...	2 2 0	Dr. C. Syme ...	1 1 0				
Mr. L. F. Bianchi ...	2 2 0	Lieut. W. Cameron Davidson, R.A.M.C. ...	1 1 0				
Dr. William B. Dow ...	5 5 0	Dr. W. L. Reid ...	3 3 0				
Dr. J. A. H. Duncan ...	1 1 0	Dr. A. Brown Watt ...	0 10 0				
Dr. Balfour Graham ...	1 1 0	Dr. W. H. McWalter ...	0 10 0				
Dr. A. G. Miller ...	0 10 6	Prof. Robert Muir ...	5 0 0				
Doctor's Daughter ...	0 10 0	Dr. Robert K. Currie ...	2 2 0				
Mrs. Marian Wormull ...	0 5 0	Dr. D. K. Knox ...	1 1 0				
Mr. John D. Malcolm ...	2 2 0	Dr. Angus W. Cameron ...	1 1 0				
Dr. Harley P. Milligan ...	2 2 0	Messrs. Duncan, Flock- hart and Co. ...	25 0 0				
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Dr. W. Balfour Gourlay ...	1 1 0	Messrs. Harkness, Beau- mont, and Co. ...	10 10 0				
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Major G. R. Livingston ...	1 1 0	Messrs. Raimess, Clark, and Co. ...	10 10 0				
Major William Haig ...	1 1 0	Dr. James L. Ewing ...	5 5 0				
Dr. J. J. Wilson ...	1 1 0	Glasgow Apothecaries Co., Limited ...	4 4 0				
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Dr. John Sinclair ...	1 1 0	Dr. J. Harvey ...	2 2 0				
Dr. John Mackay ...	1 1 0	Mr. J. Hinksman ...	2 2 0				
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Dr. W. B. MacTier ...	1 1 0	Messrs. W. E. Taylor and Co. ...	2 2 0				
Miss L. de Menezes ...	0 5 0	Messrs. H. C. Baildon and Son ...	2 0 0				
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Lieut. A. L. Christie, R.A.M.C. ...	1 1 0	Mr. A. Chalmers ...	1 1 0				
Dr. George A. Dickson ...	2 2 0	Mr. F. Crossling ...	1 1 0				
Dr. Alexander Stewart ...	1 1 0	Mr. W. S. Culbert ...	1 1 0				
Dr. T. G. Nasmyth ...	10 10 0	Mr. Rm. Doig ...	1 1 0				
Dr. Robert Rosie ...	0 10 0	Mr. R. G. Drummond ...	1 1 0				
Mr. A. A. Scot Skirving, C.M.G. ...	2 2 0	Dr. J. Dunlop ...	1 1 0				
Dr. James C. P. Reardon ...	2 2 0	Mr. John Fyfe ...	1 1 0				
Dr. Mildred M. L. Cathels ...	1 0 0	Mr. Wm. Giles ...	1 1 0				
Two Sisters ...	1 0 0						
Mr. W. C. Teacher ...	1 0 0						
Dr. Lewis McMillan ...	0 10 0						

THE IRISH FUND.

The fourth list of subscribers has been announced as follows:—

£ s. d.		£ s. d.	
Mr. R. A. Austin ...	1 1 0	Mr. W. P. Kennedy ...	0 10 0
Mr. Thomas Batt ...	1 1 0	Dr. W. H. Lowe ...	1 1 0
Dr. J. C. Boyd ...	1 1 0	Dr. T. J. MacDonogh ...	1 1 0
Dr. D. Boylan ...	1 1 0	Dr. H. McDowell ...	0 10 0
British Empire Shake- speare Society, Belfast Branch ...	17 6 0	Dr. K. Maguire ...	5 5 0
Mr. J. Burnett ...	1 1 0	Mr. A. Mawhinney ...	0 2 6
Captain J. P. Carmody, R.A.M.C. ...	1 1 0	Medical Supply Assoc. ...	1 1 0
Mr. Wm. Carr ...	0 10 0	Mr. J. M. O'Sullivan ...	0 5 0
Dr. F. Costello (Sierra Leone) ...	2 2 0	Dr. A. R. Parsons ...	5 5 0
C. E. C. ...	1 0 0	Mr. J. S. Sheill ...	2 2 0
Prof. James Craig ...	5 5 0	Mr. H. G. Sherlock ...	2 2 0
Mr. J. R. Davison ...	1 1 0	Mr. B. F. Smallman ...	1 0 0
Dr. D. P. Gaussen ...	1 1 0	Mr. J. Smith ...	1 1 0
Dr. M. J. Gibson ...	5 5 0	Prof. Walter G. Smith ...	5 5 0
Mr. R. Gray ...	1 1 0	Mr. H. C. Smyth ...	1 0 0
Dr. W. G. Harvey ...	3 3 0	Dr. J. B. Story ...	5 5 0
Dr. R. A. Hayes ...	2 2 0	Dr. E. H. Taylor ...	5 5 0
Dr. R. Hill ...	1 1 0	Dr. William Taylor ...	10 10 0
Mr. Samuel Hogg ...	0 7 6	Prof. W. S. Thayer (Baltimore, U.S.A.) ...	5 0 0
Louisa Holton, Ph.C. ...	0 5 0	Dr. E. H. Tweedy ...	10 10 0
Sir Andrew Horne ...	5 5 0	Mr. Thos. Unsworth ...	1 1 0
Mr. Allan Ingram ...	0 3 0	Dr. Ella G. A. Webb ...	1 1 0
Irish Medical Schools and Graduates Assoc. ...	10 0 0	Mr. W. F. Wells ...	1 1 0
		Mr. W. I. de C. Wheeler ...	10 10 0
		Mr. L. A. Whelan ...	1 1 0
		Prof. Sydney Young, F.R.S. ...	1 1 0

MANCHESTER AND DISTRICT.

Dr. E. M. Brockbank announces that the total amount received by this branch fund up to March 7th was £442 12s., of which £58 2s. were contributed by pharmacists and £34 10s. by the general public. The following subscriptions are additional to those published:—

£ s. d.		£ s. d.	
Mr. J. Howson Ray ...	21 0 0	Dr. F. W. Hartley ...	2 2 0
Dr. John Wharton ...	5 5 0	Dr. W. S. Moore ...	1 1 0
Mr. Garnett Wright ...	5 5 0	Dr. H. B. Woodcock ...	1 1 0
Dr. Cullen ...	3 3 0	Dr. Everard Claye ...	1 1 0
Dr. H. H. McNab ...	3 3 0	Dr. Thos. Parke ...	1 1 0
The Misses Hindle ...	2 2 0	Dr. W. C. Rigby ...	1 1 0

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

£ s. d.		£ s. d.	
West Croydon and Dist- rict Medico-Ethical Society (per Dr. F. G. Grape, Hon. Sec.) ...	1 1 0	Messrs. Vernon and Kinnear ...	3 3 0
Major Boylan Smith, R.A.M.C. ...	2 0 0	Chichester and Worth- ing Division, B.M.A. (per Dr. A. L. M. Palmer, Hon. Sec.) ...	3 3 0
Dr. C. Harold Dyer ...	1 1 0	Dr. W. J. Patterson ...	1 1 0
Dr. John Campbell ...	2 2 0	Dr. F. L. Alexander ...	1 1 0
Dr. Ruth H. Western ...	5 0 0	Northamptonshire Divi- sion, B.M.A. (per Dr. Peverell Hichens) ...	0 10 6
Dr. J. Teare ...	2 0 0	Dr. Stone ...	1 1 0
Dr. E. B. Morely ...	1 1 0	Dr. Richard H. Sankey ...	1 1 0
Mr. R. Burges ...	1 0 0	Anon. ...	1 1 0
Horsham Division, B.M.A. ...	1 1 0	Dr. H. F. Hann ...	2 2 0
Dr. Boxall ...	1 1 0		

	£	s.	d.		£	s.	d.
Mr. Joseph Baker ...	2	2	0	Dr. H. Widdas ...	2	0	0
Dr. T. J. Fletcher ...	2	2	0	Dr. J. C. J. Fenwick...	3	3	0
Mr. J. P. Ellerington (La Pharmacie Française), fifth donation ...	5	0	0	Dr. J. Brownlee...	1	1	0
North Middlesex Division, B.M.A. (per Dr. Stewart Smith, Hon. Sec.)—				Dr. W. A. Stephen ...	2	2	0
Dr. T. D. Forbes...	0	10	0	Dr. A. G. Glass ...	2	2	0
Dr. F. W. Fawcett ...	0	10	0	Dr. H. R. Kendal ...	1	1	0
South Staff. Division, B.M.A. (per Dr. H. C. Mactier, Hon. Sec.)—				Dr. T. S. P. Parkinson	2	2	0
Dr. J. J. O'Brien ...	1	1	0	Dr. S. J. B. Fox ...	2	2	0
Mrs. Thursfield ...	1	1	0	Dr. J. J. Campbell ...	2	2	0
Danish Union of Doctors (per Dr. Christopher- sen) ...	178	8	3	Dr. T. M. Martin ...	1	1	0
Miss C. O'Neill ...	1	0	0	Prof. Morison ...	10	0	0
Dr. W. E. Risdon ...	3	3	0	Mr. G. G. Turner ...	5	5	0
Dr. G. A. Wolfendale ...	1	1	0	Dr. A. G. W. Stephen	0	10	6
Dr. Isles ...	2	0	0	Dr. J. Hedley ...	3	3	0
South-West Wales Divi- sion, B.M.A. (per Dr. D. R. Price), second donation ...	2	0	0	Dr. A. H. Hobbs...	2	2	0
Dr. James Robinson ...	2	2	0	Dr. H. Kerr ...	2	2	0
Oldham Medical Society (per Dr. F. L. Pochin, Hon. Sec.)—				Dr. H. Adams ...	2	2	0
Dr. A. Bowes ...	1	1	0	Dr. B. C. Broomhall ...	1	0	0
Dr. Douglas ...	1	1	0	Birmingham Local Com- mittee (per Dr. Robert Saundby, Hon. Sec.), tenth donation—			
Dr. W. H. Willcox ...	3	3	0	Dr. and Mrs. St. Clair Ballenden (proceeds of G.F.S. Concert)...	18	7	3
North of England Branch of Belgian Doctors' and Pharmacists' Relief Fund (per Dr. James Don and Mr. A. S. Percival), second list—				Dr. Ballenden ...	5	0	0
Dr. J. C. J. Fenwick...	3	3	0	Dr. Julius H. Beilby	2	2	0
Dr. J. Brownlee ...	1	1	0	Dr. Wm. Welsh (pro- ceeds of Whist Party, additional) ...	0	10	0
Dr. G. H. Anderson ...	2	2	0	Miss I. Blyth ...	0	10	0
Mr. H. E. Armstrong ...	3	3	0	Mr. S. Fowle ...	2	2	0
Dr. F. A. Bainbridge ...	1	1	0	Mr. H. Jenkins ...	0	10	6
Dr. J. R. Fothergill ...	2	2	0	Halifax Chemists' Asso- ciation (per Mr. R. V. Sutcliffe) ...	2	2	0
Mr. A. A. Martin ...	1	1	0	Mr. T. Jackson ...	1	1	0
Dr. and Mrs. J. A. Menzies ...	2	2	0	Messrs. G. E. Bridge and Co., Limited ...	1	1	0
Dr. A. C. Park ...	1	1	0	Mr. R. J. Perkin, second donation ...	0	10	0
				Mr. M. E. Morris ...	0	10	0
				Canadian Committee for the Relief of the Bel- gian Medical and Phar- maceutical Professions (per Dr. J. Gibb Wishart, Hon. Treas.), third donation ...	200	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £7500 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list:—

Dr. F. Miller Wilson, Liverpool; Dr. F. Fowler, Bournemouth; Dr. C. D. Parfitt, Ontario, Canada; Dr. Priestley Leech, Halifax, Yorks; and Mrs. H. Barton, Market Rason.

A CENTENARIAN.—Mr. John Shintall, of Portarlington, Queen's County, who saw the famous fight between Donnelly and Cooper at the Curragh of Kildare in 1818, has died at the age of 110 years.

SANATORIUM BENEFIT IN IRELAND.—It has long been evident that the funds at the disposal of the Insurance Committees in Ireland are insufficient to meet the demands of the claimants for sanatorium benefit. In some cases the deficiency has been made up by the local authority, but in others, as in the Dublin county borough, the Insurance Committees and the local authorities have failed to come to an agreement. Last year Mr. Lloyd George promised to find further funds to enable insurance committees to meet their full responsibilities, but so far without result. The Dublin Insurance Committee has had temporarily to refuse all applications for the benefit, and it has been decided to treat in future only cases that present a prospect of recovery or improvement, and to discharge from treatment cases not progressing satisfactorily. Clearly, unless some remedy for the difficulty is found the sanatorium benefit must fail.

The War.

THE NEED OF THE ARMY FOR MEDICAL OFFICERS.

THE following letter has been received from the Director-General of the Army Medical Service:—

War Office, Whitehall, S.W.

SIR,—I should be glad if you would allow me to explain through your columns our position with regard to the employment of medical men for the army. It is briefly as follows:—

1. The need of medical men, both for home and foreign service, is acute. We want every qualified man who is physically fit and willing to serve.

2. We are in special need of general practitioners, but would be glad to take on expert surgeons, ophthalmologists, radiographers, &c.

3. We could give suitable men immediate employment.

4. At present we are not, except in special cases, sending men over 40 years of age overseas, but we should gladly take on older men for home service.

5. We do not wish to denude the country of civil practitioners, but every man who can arrange for his work to be done at home should come forward as early as possible if we are to keep up an adequate supply of medical attendance to our armies in the field. This is really a national emergency, and we hope that the medical profession, who have already done so much, will assist the responsible authorities to meet it.

Should any qualified man wish to obtain a temporary commission in the Royal Army Medical Corps he should apply to the Secretary, War Office, Whitehall, S.W., for the necessary forms.

Yours faithfully,

ALFRED KEOGH,

March 10th, 1915.

Director-General, Army Medical Service.

THE HONOURS LIST.

Lieutenant Eric Christian Lang, Royal Army Medical Corps, attached to the 1st Battalion the Leicestershire Regiment, has been appointed D.S.O. for conspicuous gallantry and devotion to duty on two occasions, especially on Feb. 9th, 1915, at Rue Du Bois, when he rescued a severely wounded officer under very difficult circumstances whilst in full view of the enemy.

THE CASUALTY LIST.

The casualties among officers in the Expeditionary Force reported since our last issue include the names of Lieutenant P. M. J. Power, R.A.M.C., and Major F. G. Richards, R.A.M.C., killed; and Captain J. H. Bell, R.A.M.C., Lieutenant T. W. Clarke, R.A.M.C., and Lieutenant C. M. Row, R.A.M.C., wounded.

ANTITYPHOID INOCULATION.

The War Office has published a table showing the distribution of typhoid fever cases among British soldiers in the field among the uninoculated, the fully inoculated, and the partially protected. Among the uninoculated there were 359 cases with 48 deaths (death-rate 13·37 per cent.); among those fully inoculated within two years (two doses), 111 cases with 1 death (death-rate 0·9 per cent.); and among the partially protected (one dose), 136 cases with 1 death (death-rate 0·73 per cent.).

BRITISH RED CROSS SOCIETY.—The summary of the work done during the week ending March 6th shows the number of auxiliary home hospitals accepted by the War Office to date to be 807, containing beds for 22,324, including 344 beds accepted during the past week. At the Netley Red Cross Hospital a total of 452 patients are under treatment. The Good Hope Red Cross Society has up to date met all reasonable demands made upon it by the Director of Medical Services, the principal medical officers of base and stationary hospitals, and the officers commanding field hospitals, &c. On more than one occasion it has been able to meet emergency calls, notably that of the Touws river railway accident, when it despatched a doctor, nurses, and orderlies within an hour from the receipt of the call for assistance. It has also supplied quantities of bed linen and medical comforts to various hospitals to meet sudden demands.

Three motor ambulances have been supplied, for use principally at the base, and there have further been despatched during the week: To Boulogne, 3 ambulances, 2 touring cars, 1 lorry, 2 soup kitchens, and 1 motor cycle; to Dunkirk, 1 ambulance and 1 repair wagon; to Havre, 1 ambulance and 1 cabriolet; to Wimereux, 1 touring car; and to places in England, 2 ambulances.

864 cases of stores were despatched abroad. Of these, 303 were sent to Boulogne and 520 to Calais. The balance represents small amounts sent to other places in France.

117 hospitals in this country were supplied in all with 222 cases of requisites and comforts. The total expenditure upon stores during the week was £1897.

RUSSIA'S SURGICAL INSTRUMENTS PROBLEM.—A Russian correspondent writes: "The problem of the supply of surgical instruments, since importation has become so difficult owing to the war, is being partly solved by the Russian cottage or home industrialists, particularly in the village of Pavloff, in the Nizhegorod government. It appears that the peasant workers there have delivered various surgical instruments of such quality as to convince local traders that not only German, but foreign goods generally of the kind, can now be dispensed with. One large Moscow house that specialises in these goods is establishing a workshop of its own at Pavloff, and is opening there a bureau for giving cash advances to peasants who have devoted special attention to the making of surgical instruments. Instruments received from Sweden are of high quality, but expensive. In a note from Moscow V. N. Rozanoff, the senior surgeon of the Soldatenkoff Hospital, states that he has received from Japan a parcel of surgical instruments of excellent quality. He is expecting similar consignments from England *via* Copenhagen."

A RUSSIAN SURGEON'S WORK AT THE FRONT.

Another Russian correspondent sends us the following translation from the *Novoe Vremya* of Feb. 11th of a letter written by a Russian professor of surgery to his wife, giving details of his work at the front and showing the wonderful fortitude on the part of wounded Russian soldiers and the whole-hearted devotion to duty of the Russian army doctors. "To-day," he says, "I had to operate on an ensign-bearer who was wounded in the brain and who suffered from paralysis in his left arm. Scarcely had I finished that operation when another, of which I shall give you some details, claimed my attention. This is the case of Paul Ivanovitch Semenov, wounded in the jaw and tongue by a German machine-gun. I shall give you a short history of his wound, so that you may, without mentioning my name, tell in the press the following facts of wonderful bravery, endurance, patience, and self-control on the part of a Russian soldier. During my 15 years of medical experience I have witnessed a great deal of patience and endurance, but never, by a long way, to the extent shown in this case. When in the course of an attack Semenov was wounded in the jaw and the root of his tongue by a German machine-gun, his mouth was filled with blood, which nearly choked him. While the battle was still in progress he returned towards his trench, where, seeing a soldier, he asked him for help, as he was very weak from loss of blood. This soldier, a German, turned upon Semenov, caught him by the throat with one hand

and was about to bayonet him with the other. But Semenov, though bleeding profusely and choking with the effusion from his mouth, was not disconcerted; he grappled with the enemy and with the aid of other Russian soldiers who hurried to his rescue made an end of the German.

During the four days which it took him to reach the hospital Semenov suffered from repeated effusions of blood from the mouth. In the morning of the same day that he arrived I extracted, without an anæsthetic, the bullet. Semenov did not utter a sound. Thinking that after the extraction of the bullet the bleeding would stop, I did nothing more than prescribe a mouth-wash. But I ordered the doctor on duty to call me immediately should the bleeding start again. The whole of the day following the operation, which relieved Semenov from excruciating pain, was passed very comfortably. Semenov brightened up, regained his appetite, began talking, and told me how he was wounded. At midnight the doctor in charge summoned me by telephone and told me that Semenov was again bleeding severely. On arriving at the hospital I found the unfortunate man spitting blood in the spittoon, which was nearly full of it. I took him immediately into the operating-room. It was very difficult to insert a suture, the injury being at the root of the tongue. Moreover, as the patient was wounded in the chin and could not therefore open his mouth wide enough manipulation inside the mouth with needle and silk was almost impossible. I therefore determined to stop the bleeding with a red hot iron. It was impossible to administer chloroform; he would have been choked with blood. The other doctor drew out with forceps Semenov's tongue and under great difficulties I began to cauterise that highly sensitive part with a red-hot iron. Not a single groan, not the slightest sound did he utter. I was in tears. But imagine my horror when I found that the red-hot iron did not stop the bleeding, but, on the contrary, increased it. The suture remained the only hope. I do not know whether it was my skill or God's mercy upon the suffering Semenov that brought the operation to a successful end. With intermissions, during which Semenov bled profusely, the medical officer on duty, Kovalsky de Schmiden, a recent graduate, now let go Semenov's tongue, now drew it out again, so that at last I inserted the suture in the mouth and the bleeding stopped. All the time Semenov did not make a moan. When I had finished he only said, 'Well, it has stopped now.' I then noticed that my young colleague was as white as a sheet and was hardly able to keep on his legs. Another moment and he would have fallen. I led him to the window, held him up, and helped him to recover. I do not wonder that these great efforts to save a life had affected him so much.

For the first time in my life I became convinced that I had iron nerves and that I was born to be a surgeon. Semenov astounded me. I bowed to his power of endurance. I respected his trust in me, his firm belief that I would surely save his life. This confidence of Semenov, which did not waver before the red hot iron or the suturing up of his tongue, afforded me much happiness of the rarest kind. The following day Semenov walked about, smoked, conversed, and thanked me, while on his tongue lay the suture of silken thread. Tomorrow I shall remove that suture. Semenov so greatly impressed and touched my soul to its very depth that I could not rest till I had gone up to him and said: 'Semenov, you have shown yourself such a hero, not only on the battlefield but here in hospital, that I shall inform your commanding officer of your heroic conduct. Tell me his name.' He was highly delighted and thanked me. That very day I wrote officially to the commander and concluded my letter as follows: 'I consider it my duty to report these circumstances to you, and hope that your regiment will be proud of their hero, and that you, colonel, will reward him.'

After Semenov I had to operate on a young wounded volunteer. The bullet had penetrated into the third rib on his left side and wounded the lung. As a result a subcutaneous emphysema had spread over the left side of the whole body. From the wound issued noisily an unceasing stream of blood mixed with a foul-smelling matter. The situation was difficult and terrible. The bandages were drenched in blood; they had been changed four times in a few hours. I cut open the second intercostal space of the left side. Before my eyes I could see beating

the noble Russian heart of a volunteer—a young locksmith. All we doctors saw for the first time through the pericardium how a heart beats. I tamponed the putrefying left lung. The patient was turned and I opened the ninth intercostal space of his left side. Here we discovered that the bullet had passed through the diaphragm, and from there plunged somewhere into the abdomen, grazing on the way a part of the spleen. The wound was tamponed. Two days have passed and he is still alive. We yet hope that he will be victorious in his struggle with death. His name is Glef Afanseyevitch Korzhikov, aged 20. My main ambition at the present moment is to save his life. I dress his wounds twice a day.

The whole of my staff are worn out and very tired. Do not be disappointed if I do not come home to rest for some time, though it is the custom for senior medical officers to do so. There is no cause for uneasiness; I am strong, well, and able to bear it all. I work from six in the morning till far into the night. Since the war started there have passed through my hands 1000 wounded."

IN THE BRIGHTON HOSPITALS.—A local correspondent sends us the following notes of some cases that have been admitted to the various hospitals in Brighton:—

Varicose aneurysm.—A patient was shot through the popliteal space by a rifle bullet. Entry and exit wounds were small and healed quickly. In the popliteal space was a pulsating, expansile swelling in the course of the artery, over which were a thrill and a loud roaring murmur. On compressing the popliteal artery above the swelling pulsation ceased. This condition is said to be not uncommon as the result of simultaneous injury of a neighbouring artery and vein by small-bore bullets, but no previous case has been seen in the Brighton hospitals. The artery is only partly divided during the passage of the bullet. In the popliteal space, where artery and vein are in close connexion and firmly bound together, the usual form of arterio-venous communication is an aneurysmal varix. As to treatment, ligature of the proximal artery is in very many cases followed by gangrene. The best procedure seems to be to wait, giving the leg complete rest, in hope that the swelling will subside. If this fails, as it usually does, ligature of the artery above and below the sac without opening it is the ideal operation.

Wound of the spinal cord.—Patient was shot through the back, the bullet entering the spine on one side at the lumbo-dorsal junction and leaving on the same level on the other. Complete loss of sensation and motion in the legs followed, also paralysis of rectum and bladder, with incontinence of urine and feces. Admitted three months after receipt of wound, much emaciated, especially in the legs, with intermittent pyrexia, cystitis, and a large sacral bedsore. In a French hospital he had had suprapubic cystotomy performed, and the urine constantly dribbled through this wound making him sore and uncomfortable. It is difficult to understand on what grounds this operation should have been carried out. He has improved very much in his general condition, as the result of good nursing, feeding, and rest. Cystitis has been much lessened by washing out the bladder twice daily. Bladder has been kept empty by tying in a catheter in order to allow the suprapubic wound to close, when the catheter will be taken out. Laminectomy has been considered, but as none of the indications laid down by the authorities—i.e., great pain above the paralysed region, or an incomplete or recovering lesion with good evidence of pressure or irritation by displaced bone or the retention of a bullet causing pressure or irritation—are present, the operation would serve no good purpose.

Fracture of the lower jaw on both sides.—A bullet passed through the lower jaw on the right side, cut away front half of tongue, and made its exit through the opposite side of the lower jaw. It is not usual for the tongue to be injured by a bullet, unless accompanied by a more serious lesion. Fractures of the lower and upper jaw have been common, and usually do wonderfully well under quite simple treatment.

Cases of bleeding from the arm some time after the infliction of the injury.—A man whose arm had been pierced by a bullet seemed to be doing well, when a sudden, unexpected and copious issue of blood from the wound occurred and the patient died almost at once, before anything

could be done. In another case in which the main artery, the brachial, was not the vessel at fault hæmorrhage occurred, and was treated by ligature at the bleeding point, but the bleeding recurred and it was therefore necessary to amputate the arm.

Frost-bite.—Among the many cases of this malady admitted the same cause operated in all—namely, standing in wet, sodden, cold, and slushy trenches for many days on end with no opportunity of drying or changing boots and socks. In all instances it was the feet that were affected, and all degrees of frost-bite were encountered, from the most serious (gangrene of the toes and even of the front part of the tarsus) to the least serious (those cases which resembled rather a chilblain of the whole foot). In the latter cases little beyond resting the feet and keeping them warm and massaged was required. They soon got well. But in the worst cases a line of demarcation must be awaited, and then as little as possible of the foot removed. It is surprising how marvellously parts which at first sight seem to be passing into gangrene recover if the surgeon will exercise patience. It is therefore well to be in no hurry to operate.

Wounds of the lung.—In the first case the bullet entered the root of the neck just over the sterno-clavicular joint, passed out at the angle of the scapula of the same side, traversing the lung in its passage. The only evidence of wound of this organ was transient hæmoptysis. This patient has a rather curious symptom, which is by no means uncommon after bullet wound of the lung, and that is dyspnoea on even slight exertion. It is said to be due either to contraction of the scar of the track of the bullet or to adhesions in the pleura. It is a troublesome symptom, often disabling the patient for a long time. In another case the bullet went in at the angle of the twelfth rib and passed out above and external to the nipple. It went through both liver and lung. The patient had all the signs of fluid in the chest, and a needle inserted showed a little fluid. This is now absorbing and the patient doing quite well.

Shrapnel wound of the eyeball; excision.—In this man a small fragment of metal had pierced the upper lid, passed through the sclerotic, and remained embedded at the junction of the iris and ciliary body, tearing the former from its attachment. The piece of shrapnel could be seen lying just behind the aperture in the torn iris. The eye being quite blinded, the eyeball was removed to avert the risk of sympathetic ophthalmia. A suture was passed through each muscle before it was cut. These sutures were tied together, and the conjunctiva was sewn up over the stump thus formed to give greater mobility to the artificial eye to be worn later.

Supposed foot-and-mouth disease.—This patient was admitted from "a town in France" with the following history. He had been in charge of horses at a farm in which there were no other animals at all. Taken ill three weeks ago; had a bad cold, and blisters appeared first on his hands, then in his mouth, then on his feet. This was diagnosed in France as foot-and-mouth disease. On admission he was feeling quite well; had no rise of temperature; the mouth was normal; his hands and feet were covered on the palmar and plantar aspects with very numerous blisters, varying in size from that of a pin's-head to that of a threepenny-piece, and yellow in colour. The diagnosis rested between foot-and-mouth disease and cheiro-pompholyx. On the whole, the majority of those who saw the case inclined to the latter view.

VACANCIES FOR MEDICAL OFFICERS.—The War Office announces that more army medical officers are required. Medical men over 40 years of age will be accepted for service at home, and temporary commissions in the Royal Army Medical Corps will be granted without delay. Applications in writing should be addressed to the Secretary, War Office.—We are informed that medical men with sanitary qualifications and experience are wanted to complete the establishment of officers of the 1st London (City of London) Sanitary Company, R.A.M.C. (T.). The present necessity has been caused by the despatch of drafts overseas, and gentlemen now joining the company may expect to be sent on active service at an early date. Particulars as to pay, allowances, &c., can be obtained from the Officer Commanding at Room B 6, Duke of York's Headquarters, Chelsea, S.W., either by letter or by calling between the hours of 10.30 A.M. and 12.30 P.M. any day.—There are vacancies for three Royal Army Medical Corps

officers in the 2/3rd North Midland Field Ambulance at Luton, Bedfordshire, which is now being rapidly trained for the front, and one of these officers should have a knowledge of, and be used to, horses to undertake the control of transport. There is also a vacancy for an officer holding the D.P.H. qualification to take charge of a sanitary section. Lieutenant-Colonel Lewis W. Pockett, R.A.M.C. (T.), the officer commanding, will be pleased to give applicants full particulars or to interview them personally in London or at Luton.—Medical officers are still urgently required for the 2/1st Highland Mounted Brigade Field Ambulance, R.A.M.C. Full particulars of the duties, pay, &c., will be given to anyone applying to Captain Mowat (officer commanding), Drill Hall, Rose-street, Inverness.

THE WOUNDED AT THE LONDON HOSPITAL.—At a court of governors of the London Hospital held at that institution on March 3rd, Viscount Knutsford, who presided, stated that 2000 British and Belgian soldiers had been treated during the period of the war. Patients who were not badly wounded, after being treated in the hospital, were conveyed in motor-cars to adjacent hospitals, and the treatment given to the civilian population had not been reduced. In referring to the London Hospital Contingent, which was formed with the object of offering its services to the War Office, Viscount Knutsford said that it had been decided not to send the contingent to the front as no young people were available, and the committee desired to conserve all their energies in order to carry out their responsibilities to the Admiralty and the War Office. Reference was also made to the picture which was being painted by Mr. John Lavery, A.R.A., showing the wounded in the wards of the London Hospital.

LIVERPOOL FIELD HOSPITAL.—Four specimen blocks of the Liverpool Field Hospital, which is shortly to go to the front, were on exhibition in Liverpool recently, the exhibition being formally opened by the Lord Mayor. The complete hospital will consist of 24 such blocks and will provide accommodation for 230 patients besides the staff and administration. Upwards of £26,000 have been spent on its equipment and maintenance, and monthly subscriptions amounting to a total of £864 have been promised for its support for periods varying from six months to the entire duration of the war. It was decided to follow out the Territorial idea, so that the staff will consist, besides commandant and quartermaster to be appointed by the War Office, of Lieutenant-Colonel Nathan Raw, R.A.M.C. (T.), Major T. C. Litler Jones, R.A.M.C. (T.), X ray specialists, and 7 other medical officers, with a paymaster, dispenser, matron and assistant matron, 41 sisters, nurses, and wardmaids, and 41 orderlies, all of whom will be from Liverpool.

A DISTINCTIVE SIGN FOR CIVIL HOSPITALS.—By the Hague Convention of 1907 it was decided that in case of bombardment civil hospitals and other public buildings should be spared as much as possible and that they should bear a distinctive sign to be made known to the enemy. The Home Secretary, in reply to a question by the town clerk of Leeds, pointed out that the proper sign for such buildings is to display conspicuously a stiff rectangular panel divided diagonally into two triangular portions, the upper painted black and the lower white. The Red Cross is reserved exclusively for hospitals under naval or military control, or where special authority has been granted by the Army Council.

ARMY CLOTHING AND INFECTIOUS DISEASE.—The Home Office has called the special attention of local authorities to the fact that they possess full powers under the Factory Act to prevent outwork being done in any house where there is infectious disease. In view of the great quantity of home work that has necessarily to be done in connexion with the manufacture of army clothing, local authorities are called on strictly to enforce the provisions of the Act.

SURGICAL APPLIANCES FOR SOLDIERS.—The War Office has notified that disabled soldiers duly certified as needing artificial limbs or surgical appliances can receive them at the public expense by making application in writing to the Commissioners of the Royal Hospital, Chelsea, London, S.W.

DENTAL SURGEONS FOR THE ROYAL NAVAL VOLUNTEER RESERVE.—The Lords Commissioners of the Admiralty have sanctioned the addition to the establishment of the Royal Naval Volunteer Reserve of two temporary officers entitled dental surgeons. They will hold relative rank with surgeons of the Royal Naval Volunteer Reserve, and the pay will be £1 a day with compensations, pensions, and allowances on the same scale and under the same conditions as for surgeons of the Royal Naval Volunteer Reserve.

A MOTOR AMBULANCE FOR THE FRENCH RED CROSS.—A motor ambulance has been presented to the French Red Cross by the members of the Athenæum Club, who have already given one to the British Red Cross.

A POPULAR lecture, under the joint auspices of the Chadwick Trust and the League of Mercy, on the War and the Wounded, 1870-71, 1914-15 (illustrated by lantern slides), will be given by Mr. Adolphe Smith, Sanitary Commissioner to THE LANCET, who served in the French Ambulances during the Siege of Paris, in the lecture hall, Royal Society of Arts, John-street, Adelphi, W.C., to-day, Friday, March 12th, at 5.15 P.M. The chair will be taken by Sir William J. Collins, K.C.V.O., M.D. Admission free.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At a meeting of the Court of Assistants held at Apothecaries' Hall, Blackfriars, London, E.C., on March 9th, the honorary freedom of the society was conferred upon Sir Ronald Ross, K.C.B., F.R.S., in recognition of the very valuable services rendered by him to medical science, especially in connexion with the prevention of tropical disease. At the same meeting grants were made to various charitable funds in connexion with the war.

QUEEN'S HOSPITAL, BIRMINGHAM.—The seventy-fourth annual report of the Queen's Hospital, Birmingham, which was submitted to the board of governors at the hospital on March 10th, shows that during the year 1914 the number of in-patients treated was 2966 and the number of out-patients 28,430. The income was £11,827 and the expenditure £18,387, leaving a deficit of £6560. As in the case of other hospitals, the staff has been depleted owing to the war, but much excellent work has been done in administering to the needs of English and Belgian wounded soldiers.

THE National Health Insurance Commission (England) have issued a circular (AS. 161) dealing with the certificates of medical men attending panel patients in a private capacity, and giving the official reason why the forms Med. 40 have not been supplied to practitioners for use in these cases.

THE Editor of the *Journal of the Canadian Medical Association*, Dr. Andrew Macphail, announcing a change of address, asks that in future books, periodicals, and communications intended for the journal should be addressed to him at 836, University-street, Montreal.

Mr. R. Thomas Jones, L.R.F.P.S. Glasg., L.S.A. Lond., of Harlech, has been appointed High Sheriff for the county of Merioneth for 1915-16.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Naval Medical Compassionate Fund Bill.

THE Naval Medical Compassionate Fund Bill has been read a third time in the House of Lords. It has also passed through all its stages in the House of Commons, and it is therefore ready to receive the Royal Assent. In the House of Lords there was some disposition to inquire whether the fund with which the Bill deals was not being diverted from the purpose for which it had been originally subscribed. The representative of the Government, however, stated that the distribution of the fund would be settled by an order to be laid on the table of the House. The Bill was then permitted to pass through its remaining stages.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 3RD.

Pay of Territorial Medical Officers.

Mr. JOYNSON-HICKS asked the Financial Secretary to the War Office what were the rates of pay for captains in the Territorial Royal Army Medical Corps who went to the front as compared with pay given to civilian doctors for the same work.—Mr. H. BAKER wrote in reply: The present emoluments compare as under:—Emoluments of captains of the Royal Army Medical Corps, Territorial Force, when serving at the front: Pay (per day), 15s. 6d.; field allowance, 3s. 6d.; lodging, 3s.; fuel and light, 1s. 3d.—total 23s. 3d. Emoluments of civil surgeons commissioned as temporary lieutenants, Royal Army Medical Corps, under the same conditions: Pay (per day), 24s.

Sickness Benefit in Ireland.

Mr. GINNELL asked the Chancellor of the Duchy, as representing the National Insurance Commissioners, a series of questions in regard to the administration of sickness benefit in Ireland.—Mr. MONTAGU replied that he would be glad to make inquiry into any case that was brought to his notice where undue delay or difficulty had been experienced in obtaining a certificate to support a claim for sickness benefit. As regards these claims, the medical men who were giving certificates under the National Insurance Acts had arranged convenient places in their districts at which insured persons might attend for examination, and in any case where an insured person was prevented by distance or by his physical condition from leaving his own home he must be visited by the doctor in his own home. It was the duty of Approved Societies to scrutinise all claims for sickness benefit, and where the necessary conditions were fulfilled to their satisfaction benefit was payable from the fourth day of incapacity for work. As regards the basis on which grants had been made to facilitate the provision of medical certificates in Ireland, the Chancellor of the Exchequer stated on August 14th, 1913, that he was satisfied that a grant of £50,000 was insufficient to cover the cost of satisfactory arrangements for this purpose, and undertook to ask Parliament to increase the grant up to a maximum limit of 2s. 6d. per insured person per annum. This latter sum was equivalent to a sum of £97,100 per annum, and the estimates provided that payments out of the account under this head should be subject to conditions determined by a scheme made by the Irish Commissioners, with the approval of the Treasury. Pending the approval of such a scheme expenditure might be incurred for the purpose of certification in Ireland to an annual amount not exceeding £50,000 voted for this purpose. The present annual expenditure was about £44,000, the remuneration paid being inclusive of travelling expenses.

Mr. GINNELL asked the right honourable gentleman what independent medical approval, if any, the Irish Insurance Commissioners had for allowing insured poor persons seriously ill to be improperly disturbed by a certifier who, not being the medical attendant, was unacquainted with the cases, and for the Commissioners' more recent attempt to have laymen appointed to visit cases which they had no qualification for judging and from some of which they might convey infection; and whether, before allowing those two practices to proceed further, he would have them considered by the highest medical and surgical authorities in Ireland.—Mr. MONTAGU wrote in reply: I am informed that doctors who visit insured persons desirous of obtaining medical certificates are instructed to exercise every care in visiting persons who are seriously ill and are not permitted to interfere with the treatment prescribed by the doctor in attendance. If I correctly understand the second part of the question to refer to the appointment of sick visitors by Approved Societies, I may say that a system under which such visitors are appointed is of much value to Approved Societies in exercising a proper supervision over claims for sickness benefit. As regards the third part of the question, the Irish Insurance Commissioners are, as I myself am, of course, happy at any time to receive suggestions for the improvement of the existing system of certification. The right honourable gentleman added, in reply to another question, that any work in connexion with certification was only undertaken by Poor-law medical officers on the distinct understanding that it would not interfere with the proper performance of their other duties.

THURSDAY, MARCH 4TH.

Antityphoid Inoculation.

Mr. TENNANT, Under Secretary for War, informed Mr. CHANCELLOR that there had not been any change in the instructions with reference to antityphoid inoculation in the army.

The Sanitary Condition of Soldiers' Billets.

Mr. HOGGE asked the President of the Local Government Board whether he called for reports from local sanitary authorities as to the conditions of soldiers' billets; and

whether he would make any special inspection of those districts where large numbers of men were billeted.—Mr. HERBERT SAMUEL replied: Last autumn the Local Government Board, after consultation with the War Office, issued circular letters to local authorities indicating the action which should be taken by the authorities and their officers to give assistance in connexion with the sanitary condition of military quarters and other matters affecting the health of troops, including the systematic inspection of billets. I have received a number of reports from medical officers of health on camps and billets in their districts. Since the outbreak of the war my medical inspectors have visited camps and billets in all parts of the country and have made inquiries with respect to their sanitary condition and the action of local authorities and their officers in the matter. Up to the end of January about 550 such visits had been made. In addition to local representations by the inspectors action has been taken on their reports by the Board in cases where this was necessary by means of communications with the War Office and the local authorities.

Mr. HOGGE: Has my right honourable friend any report of the cases in which soldiers themselves have got rid of mattresses by burning them on account of their insanitary condition?—Mr. HERBERT SAMUEL: I have not had brought to my notice any such report, but if the honourable Member can give me any particular case I shall be glad to investigate it.

Mr. ALDEN: Has the right honourable gentleman received any complaints from the local authorities?—Mr. HERBERT SAMUEL: There have been representations which have been handed on to the War Office, but there has been no case of difficulty in providing a remedy in each case so far as I am aware.

Mr. JONATHAN SAMUEL: Is there any objection on the part of the military authorities to visits by the medical officers of health?—Mr. HERBERT SAMUEL: No. So far as I am aware the military authorities are most anxious to have the assistance both of the officers of the Local Government Board and the local officers of health to secure the best sanitation they can.

Sick and Wounded Soldiers in Hospitals.

Mr. HARRY LAWSON asked the Financial Secretary to the War Office what was the basis upon which contributions were made to the voluntary hospitals which, with the approval of the War Office, were admitting sick and wounded soldiers; whether such basis of contributions was uniform throughout the United Kingdom or whether a varying scale had been adopted; and, if so, upon what principle such variations were made.—Mr. H. BAKER answered: I am glad to say that the use of these voluntary hospitals has not been offered on a commercial basis, and the assistance given from public funds has taken the form of a grant-in-aid on the basis of a daily rate per occupied bed. The rate is normally 2s., but in some cases a somewhat larger grant may be given by the general officer commanding.

Mr. LAWSON: Will a difference be made between general hospitals in the metropolitan area and other hospitals?—Mr. BAKER: I cannot answer that question without notice.

Promotion in the Royal Army Medical Corps.

Sir C. KINLOCH-COOKE asked the Under Secretary for War whether there had been any cases of junior officers of the Royal Army Medical Corps promoted for services during the war, and, if not, why this corps should have been exceptionally treated in this respect.—Mr. TENNANT said in reply: Four majors have been promoted to be brevet-lieutenant-colonels. Decorations have also been conferred on 13 majors, 12 captains, and 9 lieutenants.

MONDAY, MARCH 8TH.

Sight Tests in the Mercantile Marine.

Mr. LYNCH asked the President of the Board of Trade whether his attention had been lately drawn to the inefficiency of the sight tests used by the Board; whether these tests had been adversely commented on by a great number of authoritative members of the medical profession; whether he would take steps to secure the best type of lantern available; whether it was found that the wool test allowed over 50 per cent. of dangerously colour-blind candidates to pass and produced the rejection of over 50 per cent. of normal-sighted candidates; and whether he would abolish this test altogether.—Mr. RUNCIMAN said in reply: I have reason to believe that the sight tests employed by the Board of Trade are efficient for their purpose, and that the criticisms made on the lantern are unfounded. The lantern test was submitted about a year ago to a rigorous practical test at Shoeburyness in the presence of representatives of shipowners, shipmasters, and others who had raised objection to its use, and as a result these objections were formally withdrawn. The figures as to the operation of the wool test are not entirely accurate, but the wool test has now become quite a subordinate part of the examination and no candidate is finally passed or rejected on this test alone.

The question whether the wool test can be dispensed with as superfluous is receiving consideration, but in present circumstances I should prefer to have somewhat longer experience of the new system before finally deciding the matter.

Mr. LYNCH: Will the right honourable gentleman undertake to defend the wool test scientifically?—Mr. RUNCIMAN: I have already said that I should prefer to have some longer experience of the new system before expressing any opinion upon it.

School Drill and Medical Opinion.

Sir J. D. REES asked the President of the Board of Education whether medical opinion other than that of the medical branch of the Board of Education had been sought in order to confirm the opinion of such medical branch to the effect that for children up to 14 or 15 it was most desirable that military drill should not be introduced into elementary schools.—Mr. J. A. PEASE replied: The answer is in the negative, as no occasion has arisen for such a consultation. In 1902 the Board issued a "Model Syllabus of Physical Exercises" which was largely based on military drill. In 1904 an Inter-departmental Committee, which included two medical men, unanimously reported that they did not consider the model syllabus suitable for use in schools, and recommended the adoption of a scheme based upon well-defined physiological and educational principles. When considering the revision of the syllabus in 1909 the Board had the advantage of informal consultation with a number of medical authorities.

Mr. WHITEHOUSE: Will the right honourable gentleman say whether the statement in this question as to the opinion of the medical branch of the Board of Education is correctly given?—Mr. PEASE: I cannot say as to the precise words without reference to the medical report, but I know that the opinion of my medical adviser is that the physical system at present in use in the elementary schools in this country is much the best kind of exercise and drill which those children can undergo.

TUESDAY, MARCH 9TH.

Private Houses as Military Hospitals.

Sir WILLIAM BULL asked the President of the Local Government Board whether he could see his way to arrange that private houses which were lent for the purpose of naval or military hospitals were free of rates while so used.—Mr. HERBERT LEWIS (on behalf of Mr. HERBERT SAMUEL) replied: The Local Government Board have no power to take any action of the kind suggested in the question. They have, however, stated in answer to inquiries that if a local authority in such a case should see fit to exempt such premises from rating the Board themselves would not, in the present circumstances, wish to take exception to such a course.

The Health Conditions of Osborne.

Lord CHARLES BERESFORD asked the Secretary to the Admiralty whether, with regard to the unhealthy condition of Osborne College, in which there were now 136 cases of illness, and having regard to the constant state of ill-health among the cadets and the fact that the college was built over old stable drains and soil sodden with tetanus germs and the prevalence of the complaint called pink eye, the Admiralty would appoint a commission of medical men to inquire into and report on the case.—Mr. MACNAMARA replied: There has been no case of tetanus at Osborne and no epidemic, but only isolated cases of the form of conjunctivitis alluded to by the noble lord as "pink eye" during the last two years. I may say that investigations were held in 1905 by the members of the Medical Consultative Board, together with Mr. Fisher, oculist, and independently by Dr. Louis Parkes, the sanitary expert, and again in 1910 by Dr. Louis Parkes and Dr. A. E. Russell. Practically all the alterations and improvements recommended in the reports of these commissions have been carried out. Further, from time to time other medical men have visited and reported on Osborne. It is not considered necessary to adopt now the suggestion contained in the last sentence of the noble lord's question.

Sequence of Illnesses in Metropolitan Asylums Board Hospitals.

Mr. TOUCHE asked the President of the Local Government Board whether he was aware that A. B., aged 3 years, who was removed to the Metropolitan Asylums Board Fever Hospital, Homerton-grove, on or about Oct. 9th last, suffering from scarlet fever, was subsequently reported to be doing well, then to have contracted chicken-pox, then to be quite well again and soon to be discharged, and then to be suffering from diphtheria; would he say whether a sequence of illnesses was common in the experience of the hospitals of the Metropolitan Asylums; and would he cause inquiries to be made as to the possibility of adopting improved methods of treatment, especially as regards the exposure of convalescents to risk of infection.—Mr. HERBERT SAMUEL furnished the following written reply: I am informed by the managers of the Metropolitan Asylums Board that A. B., age 2½, was admitted to the Eastern Hospital, Homerton, on Oct. 10th, certified to be suffering

from scarlet fever. The attack was mild and she was placed in a ward of 20 beds reserved for scarlet fever patients. On Dec. 11th she developed chicken-pox, which there is no doubt at all was introduced into the ward by a patient from outside who was admitted suffering from scarlet fever and also incubating chicken-pox, which shortly afterwards developed. A. B. was promptly isolated, along with two other patients who were suffering from scarlet fever and chicken-pox (all three being removed from the same ward). On Feb. 22nd A. B. showed signs of diphtheria and from that date she has been in a separation ward by herself. I am also informed that post-scarlatinal diphtheria is unfortunately not uncommon, in fact there are some grounds for stating that an attack of scarlet fever predisposes to an attack of diphtheria. Such cases of diphtheria occurring in a scarlet fever ward may be due to an unrecognised case of diphtheria or to the presence in the ward of a carrier case. Such cases are quite frequent among school children, and it is possible that A. B. was herself a carrier case and that the diphtheria bacilli in her throat became active after her prolonged illness. No other case of diphtheria has occurred in either of the wards in which she was treated. In reply to the second paragraph of the honourable Member's question, I am informed that it is quite uncommon to have such a sequence of illnesses in the Metropolitan Asylums Board's hospitals, and even secondary diseases are relatively uncommon, especially when one considers the frequency with which children are exposed daily to infection in schools and crowds. The ratio of the following complications of scarlet fever cases in 1913 (the latest return available) and 1903 respectively was per 100 cases:—

	1903.	1913.
Diphtheria	2.32	1.36
Chicken-pox	2.36	1.48

In reply to the third paragraph, I may say that the question of improved methods of treatment is at no time lost sight of by the managers and their advisers, and the figures given above show that the structural and other provision which has been made to reduce the risk of cross-infection to which all fever hospitals are liable has not been unsuccessful.

Uncertified Mental Patients.

Mr. ALDEN asked the President of the Local Government Board whether he was prepared, in accordance with the tenor of the memorial signed by 330 Members of Parliament and 236 doctors which was presented to him last July, to grant permissive powers to the London County Council and other county councils to form a committee to manage and maintain a hospital which uncertified mental patients might enter voluntarily to receive the early treatment most conducive to their cure.—Mr. HERBERT SAMUEL wrote in reply: I would refer my honourable friend to my reply to a similar question on March 1st. I have no authority to confer on county councils the powers suggested in the question, but my honourable friend will see on reference to the London County Council (General Powers) Bill that the County Council are seeking powers to receive in a hospital cases of the kind mentioned.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANGUS, WILLIAM, M.D. Aberd., D.P.H. Cantab., has been appointed Acting Medical Officer of Health for Leeds.
BLUMFELD, JOSEPH, M.B., B.C. Cantab., has been appointed an Honorary Anaesthetist to King Edward VII.'s Hospital for Officers.
CARRINGTON, G. H., M.R.C.S. Eng., D.P.H., has been appointed Temporary Assistant School Medical Officer to the Durham Education Committee.
CLAPHAM, E. W., M.R.C.S., L.R.C.P. Lond., has been appointed an Honorary Anaesthetist to King Edward VII.'s Hospital for Officers.
COLLINGS, D. W., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Southwold District of the county of Suffolk.
HOBHOUSE, E. W. N., M.B., B.Ch. Oxon., has been appointed Resident Medical Officer at the City of London Hospital for Diseases of the Chest, Victoria Park, N.E.
HYNES, LOUIS A., L.A.H. Dub., has been appointed Temporary Assistant School Medical Officer for Torquay.
LOW, V. WARREN, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed External Examiner in Surgery at the University of London.
MAGEE, J. R., L.R.C.P. & S. Irel., has been appointed Port Medical Officer at Londonderry.
ROSS, R. H., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Clogher District of the county of Tyrone.
SMITH, R. TRAVERS, M.D. Dub., F.R.C.P., has been appointed Professor of Materia Medica, Therapeutics, and Pharmacy at the Royal College of Surgeons in Ireland.
SPENCE, R. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Stewartstown District of the county of Tyrone.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

- AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—Locum Tenens House Surgeon.
- ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with residence, board, &c.
- BENENDEN, KENT, NATIONAL SANATORIUM.—Assistant Medical Officer. Salary £120 per annum, with board, residence, and laundry.
- BETHNAL GREEN INFIRMARY, Cambridge-road, N.E.—Assistant Medical Officer. Salary at rate of £280 per annum, with apartments, board, and washing.
- BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
- BIRMINGHAM, CITY MENTAL HOSPITAL, Winslow Green.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.
- BIRMINGHAM GENERAL HOSPITAL.—Honorary Surgeon. Also an additional Assistant Surgeon. Salary at rate of £50 per annum.
- BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Physicians. Salary at rate of £80 per annum, with board, apartments, washing, and attendance.
- BOLTON INFIRMARY AND DISPENSARY.—Senior House Surgeon and Second House Surgeon. Salary £230 and £200 per annum respectively, with apartments, board, and attendance.
- BOXTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence, board, and laundry.
- BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £100 per annum, with board, lodging, washing, &c.
- BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
- BRISTOL EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.
- BRISTOL GENERAL HOSPITAL.—Resident Obstetric Officer for six months. Salary at rate of £120 per annum, with board, residence, &c.
- BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
- BROOKWOOD, SURREY COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £250 per annum, with board, lodging, and laundry.
- BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
- BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
- CAMBERWELL, CONSTANCE-ROAD INSTITUTION, East Dulwich, S.E.—Temporary Resident Medical Officer. Salary at rate of £350 per annum, with apartments, board, washing, &c.
- CANTERBURY, KENT COUNTY ASYLUM, Chartham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
- CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.
- CARLISLE, CUMBERLAND INFIRMARY.—House Physician for six months. Salary as arranged.
- CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.
- CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.—Resident House Surgeon. Salary £50 per annum, with board and residence.
- CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.
- CHESTERFIELD, BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.
- COLCHESTER, ROYAL EASTERN COUNTIES' INSTITUTION FOR IMBECILES AND THE FEEBLE-MINDED.—Female Medical Officer. Salary at rate of £200 per annum, with board, apartments, attendance, and washing.
- DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.
- DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
- DEWSBURY AND DISTRICT GENERAL INFIRMARY.—House Surgeon. Salary £170 per annum, with board, residence, and laundry.
- DUDDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
- DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Salary £120 per annum.
- DUNDEE ROYAL INFIRMARY.—Resident Medical Officers. Salary £100 per annum.
- ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, residence, and laundry.
- GLASGOW, CORPORATION OF THE CITY OF.—Vacancies among Junior Resident Medical Staff of City of Glasgow Fever Hospitals. Salary at rate of £160 per annum. Also Assistant Bacteriologist (two vacancies). Salary £250 per annum.
- GRANGE-OVER-SANDS, WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—First and Second Assistants to Medical Superintendent. Salary £250 and £200 per annum respectively, with apartments, board, and laundry in each case.
- GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon.
- HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
- HEREFORD COUNTY AND CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, and all found except stimulants.
- HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas. Also Physician.
- HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board, residence, &c.
- HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £30 per annum.
- HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.
- INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £150 per annum, with board, &c.
- ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £30 per annum, with board and residence.
- LEEDS, GENERAL INFIRMARY.—Resident Medical Officer for six months at Ida and Robert Arthington Hospitals. Salary £60 per annum, with board, residence, and laundry.
- LEICESTER ROYAL INFIRMARY.—Ophthalmic House Surgeon, &c. Salary at rate of £100 per annum, with bonus, board, apartments, and washing.
- LIVERPOOL COUNTY ASYLUM, Rainhill.—Temporary Assistant Medical Officer. Salary £6 6s. per week, with apartments, board, attendance, and washing.
- LIVERPOOL ROYAL INFIRMARY.—Two House Physicians, Three House Surgeons, and One House Surgeon to Gynaecological Department, all for six months. Salary at rate of £60 each per annum.
- LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Surgeons and One House Physician, each for six months. Salary at rate of £60 per annum, with board and residence.
- MACCLESFIELD, CHESHIRE COUNTY ASYLUM, Parkside.—Junior Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.
- MANCHESTER, ANCOATS HOSPITAL, Mill-street.—House Physician. Salary £80 per annum, with board and residence.
- MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department, for six months. Salary £100 per annum.
- MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
- MANCHESTER, EAST LANCASHIRE TERRITORIAL FORCE.—Officers in East Lancashire (Second Line) Field Ambulance.
- MANCHESTER, MONSIEUR FEVER HOSPITAL.—Second and Third Medical Assistants. Salary £175 and £150 per annum respectively, with board, lodgings, and washing.
- MERTHYR TYDFIL COUNTY BOROUGH.—Assistant School Medical Officer. Salary £300 per annum.
- MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.
- MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.
- NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.
- NORTH RIDING OF YORKSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
- NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon. Salary £150 per annum, with board, lodging, and washing.
- NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.
- PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, washing, and attendance.
- QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician for six months. Salary £100 per annum, with board, residence, and washing.
- ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male and Female House Physicians and House Surgeons for six months. Board, lodging, and washing provided. Also Acting Assistant Physician to have Care of Out-patients. Also Female Senior Obstetric Assistant. Salary £75 per annum, with board, lodging, and washing. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided.
- ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence. Also Dental Surgeon.
- ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100, all found.
- ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William street, West Strand, W.C.—Assistant House Surgeon for six months. Salary at rate of £50 per annum.
- ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, M.—Junior Resident Medical Officer. Salary at rate of £90 per annum, with board, residence, and laundry.
- SALFORD ROYAL HOSPITAL.—House Surgeon, Junior House Surgeon, and Casualty House Surgeon. All for six months. Salary at rate of £100 per annum each, with bonus, board, and residence.
- SALFORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £300 per annum, with apartments, attendance, and rations.
- SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.
- SECOND EAST ANGLIAN FIELD AMBULANCE.—Medical Officer. Pay and allowances as in Regular Army.
- SHEFFIELD CITY HOSPITALS (INFECTIOUS DISEASES AND TUBERCULOSIS).—Second Assistant Medical Officer. Salary £225 per annum, with board, apartments, attendance, and washing.
- SHEFFIELD ROYAL HOSPITAL.—Female Assistant House Surgeon and Female Assistant House Physician. Salary £85 and £80 per annum respectively, with board, residence, and washing.
- SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.
- SHEFFIELD UNIVERSITY.—Joseph Hunter Chair of Pathology.

Notes, Short Comments, and Answers to Correspondents.

SIR THOMAS LONGMORE AND THE CARE OF OUR WOUNDED.

IN THE LANCET of Oct. 3rd, 1914, we published a leading article on the Care of Our Wounded, in which we mentioned that the scheme for the care of our wounded was laid down many years ago by Sir Thomas Longmore, and that it lent itself to various developments. In his address before the Section of Military Surgery and Medicine of the International Congress of Medicine held in London in 1881¹ Sir Thomas Longmore finished by saying: "The sketch I have laid before you of the existing arrangements for ensuring help and skilled attention to the wounded in case of this country unhappily becoming involved in war has been unavoidably a superficial and imperfect one, and I must apologise for its incompleteness." Those who are studying the improvements of ambulance transport in the various competitions that have been recently announced might be interested to look at Sir Thomas Longmore's interesting book on ambulances published in 1869, with its voluminous information and illustrations of inventive enterprise.

THE METRIC SYSTEM.

To the Editor of THE LANCET.

SIR.—With reference to your comments of March 6th (p. 506) on a possible danger in connexion with the metric system in prescribing may I suggest that during the period of transition it would hardly be fair to leave the onus of the transposition of formulæ to rest entirely on the dispenser. Since the metric system became official I have employed both formulæ, one on the left and the other on the right hand margin of the prescription. I think that practice might with mutual advantage be adopted in the immediate future.

I am, Sir, yours faithfully,
Harley-street, W., March 8th, 1915. W. BEZLY THORNE.

CENTIGRADE AND FAHRENHEIT.

To the Editor of THE LANCET.

SIR.—Your correspondents who wish to know an easy way of changing Centigrade into Fahrenheit would find the following method both simple and accurate. Double the number of C. degrees, deduct a tenth and add 32. Such a calculation can be made without the aid of pen and paper.

I am, Sir, yours faithfully,
AUG. HADLEY.
Craven-street, Strand, W.C., March 5th, 1915.

"SHELL FUMES AND PNEUMONIA."

IN a letter to the *Times* under the above heading Sir William Ramsay suggests that the acute pneumonia which, it is reported, often develops after a man has been exposed to the fumes of a bursting shell are due to nitric peroxide. As this gas is readily soluble in water it may be rendered harmless by passing it through a moist cloth. Such a precaution is adopted by the workers in bleaching-powder chambers to keep the chlorine from entering the lungs. To guard against a sudden exposure to gas a well wrung-out wet handkerchief or any bit of cloth is stuffed into the mouth and air breathed through it, the return air being discharged through the nose. Sir William Ramsay's suggestion should be generally known.

A NEW METHOD OF STERILISATION.

To the Editor of THE LANCET.

SIR.—In your issue for Jan. 23rd appears an annotation on an article in the *Gazzetta degli Ospedali* by Dr. Guido Cremonese, drawing attention to the value of iodobenzene as a disinfectant. May I be permitted to record my own three years' observations on the use of that antiseptic product?

Some three years ago I was operating upon a valuable pedigree Devon bull for a subparotideal actinomycotic growth, the capsule of which, distended with pus, was very attenuated; and in the process of dissection and removal the virulent pus escaped, contaminating the surgical wound, which in my experience nearly always leads to a recurrence unless active measures are adopted to counteract the infection. I had an ounce of tincture of iodine with me, but the cavity having a capacity of 300-500 c.c. this dressing for packing would not go far. I obtained about 10 oz. of petrol from my car and mixed it with the tincture of iodine, and I confess to no small degree of disappointment when I recognised the two did not mix well.

¹ THE LANCET, August 6th, 1881, p. 240 et seq.

Births, Marriages, and Deaths.

BIRTHS.

BROAD.—On March 4th, at Rodney-street, Liverpool, the wife of W. H. Broad, M.D., B.S., of a son.
SPARKS.—On Feb. 28th, at Whitley Bay, the wife of Dr. J. P. Sparks, of a son.
TRAILL-THOMSON.—On Feb. 26th, at The Parade, Leamington, the wife of Dr. W. Traill-Thomson, of a daughter.

MARRIAGES.

BOYS STONES—GIBBS.—On Feb. 23rd, at St. Saviour's Church, Torquay, William Boys Stones, B.A., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., to Florence Maud, second daughter of J. T. Gibbs, of Torquay.
GOODWIN—RUDHALL.—On Feb. 18th, at St. Peter's, Belsize-square, Lieutenant Aubrey Goodwin, R.A.M.C., to Elsa, daughter of the late John P. Rudhall and Mrs. Rudhall, of Belsize Park-gardens.

DEATHS.

ELLIOTT.—On Feb. 26th, at Sussex-street, Winchester, Gilbert Elliott, M.M.C.S., L.R.C.P., D.P.H., D.T.M., aged 44 years.
HARNETT.—On March 1st, at Belvedere House, Barnet, suddenly, William John Harnett, F.R.C.P. Edin., late Surgeon-Major, 22nd Middlesex R.V., aged 70 years.
MCALLUM.—On Feb. 26th, Donald C. A. McAllum, M.B., C.M.
RICHARDS.—On March 5th, killed in action, at Neuve Eglise, Francis Graham Richards, Major, Royal Army Medical Corps.
SIEVEKING.—On March 10th, at Devonshire-terrace, Hyde-park, W., Jane, widow of Sir Edward Sieveking, M.D. Edin., F.R.C.P. Lond., in her 90th year.
STUART.—On March 9th, the result of a motor accident, Francis Arthur Knox Stuart, B.A. Camb., L.S.A. Lond., Senior Assistant Medical Officer, Graylingwell Hospital, Chichester, son of the late Major Burleigh Stuart, of Omagh, and of Mrs. Stuart, Ranelly, Crowborough, aged 39 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

However, I had the cavity well flushed out with a strong solution of citrate of soda and then firmly plugged with tampons soaked in the iodine and petrol solution. While applying the dressing I was greatly struck with the amount of powerful vapour emanating from the dressing, which had a most irritating effect upon one's eyes. The operation wound healed well, and I saw the patient quite recently and there was no sign of a recurrence. Since then I have used the iodine and petrol dressing as a matter of routine in my practice, amounting in all to well over 300 patients, in such cases as fistulous wounds and deep-seated punctures, surgical cavities which have been contaminated, also for the sterilisation of skin prior to operations in neurectomies, tenotomies, ovariectomies, hysterectomies, and the removal of neoplasms.

The great therapeutical value of the dressing appears to be summed up in its powers of penetration, and unlike so many antiseptics it does not retard the phagocytic action or lower the bacteriotropic powers of the fluids flushing the wounds. For this reason the dressing has been found most useful in wounds infected with such virulent bacteria as bacillus oedematis maligni, B. chauvæi, B. tetani if applied early and thoroughly enough. Finally, by reason of its cheapness it should commend itself to veterinary practice, at least when in some cases several ounces require to be used at each dressing.

I am Sir, yours faithfully,

W. M. SCOTT, F.R.C.V.S.,

Consulting Veterinary Surgeon for the
County of Somerset.

March 4th, 1915.

THE "CRAIGLEITH HOSPITAL CHRONICLE."

THE third monthly issue (February) of the *Craigleith Hospital Chronicle* contains a portrait of Surgeon-General G. D. Bourke, C.B., the Deputy Director of Medical Services in Scotland. One of the results of the war has been the very natural desire on the part of those not in the Services or who have only recently joined to know the meaning of the thousand and one military terms that constantly occur in the newspapers and elsewhere, and the serial articles in this *Chronicle* supply this kind of information. The Notes on the Army this month deal with the Artillery. The magazine may be obtained, price 6d., from the Second Scottish General Hospital, Craigleith, Edinburgh.

WHAT IS NORMAL TEMPERATURE?

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 6th (p. 530) "Grimpeur" speaks of "the daily range of temperature in health—namely, from 97° to 98.4°." Surely if that were the case the normal line on our charts and thermometers should stand at 97.7°. I have always supposed the daily range to extend on either side of 98.4°—say from 97.8° to 99°—and so should regard 99° as a less abnormal figure than 97°.

I am, Sir, yours faithfully,

H. ALSTON, M.D.

West Norfolk and Lynn Hospital, King's Lynn,
March 8th, 1915.

"WHAT EVERY SOLDIER OUGHT TO KNOW."

THIS little work consists mainly of extracts from official text-books and training manuals, and is an attempt to provide the private soldier with as much rudimentary knowledge of his profession as may conveniently be conveyed in print and in the smallest possible compass. Care has been taken to convey the spirit as well as the letter of the authorised books of instruction, and the few sentences about preservation of health are clear and to the point. It can be obtained from Humphrey Milford, Oxford University Press, Amen Corner, London, E.C., price 2d.

TUBERCULOSIS SANATORIUMS.

A USEFUL list of sanatoriums and other residential institutions approved by the Local Government Board under the National Insurance Act for the treatment of persons resident in England (excluding Monmouthshire) who suffer from tuberculosis has been issued by the Board and revised up to Feb. 20th. It may be obtained, price 1d., either directly or through any bookseller, from Messrs. Wyman and Sons, Limited, 29, Bream's-buildings, Fetter-lane, London, E.C.; H.M. Stationery Office (Scottish Branch), 23, North-street, Edinburgh; or E. Ponsonby, Limited, 116, Grafton-street, Dublin.

Specimen sheets of a "Sanatorium Case Register," designed by Mr. G. M. Mayberry, B.A., L.R.C.P., have also reached us. The size of each page is 11½ in. wide by 16½ in. deep. Two opposite pages form a record. The upper half of the left-hand page contains spaces for the necessary data concerning the patient up to and at the time of admission. The lower half shows duplicated clinical charts of the thorax, front and back, and of the larynx, in order to record for comparison the conditions

on admission and on discharge. Spaces are also left for results of treatment, remarks, urine and sputum, and tuberculin tests. The opposite page is left blank for notes, with a tabulated space for after-history six months, one year, and each year afterwards up to ten years. The books, which are supplied strongly bound with index to contain from 50 to 200 forms at prices from £1 5s. to £2, are published by Mr. H. K. Lewis, 136, Gower-street, London, W.C.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—I should be much obliged if any of your correspondents would tell me of a home which would take a spinal case (fracture). No bedsores or urinary or rectal trouble. The patient is a collier and he is entitled to about £1 a week compensation. He is single, but his mother is in service—a caretaker in a London flat—and cannot therefore look after him.—I am, Sir, yours faithfully,

H. NEVILLE TAYLOR, M.A., M.D., F.R.C.S.,
Surgeon, Ebbw Vale Hospital.

Hillside, Ebbw Vale, Mon., March 8th, 1915.

S. J. B.—All the following small manuals on massage have been favourably reviewed in our columns on the dates indicated. "Lessons on Massage," by Margaret Palmer, Baillière, Tindall, and Cox, 1912, price 7s. 6d. net (April 6th, 1912); "Massage, its Principles and Technique," by Max Böhm, edited by Dr. Painter, W. B. Saunders Company, 1913, price 7s. 6d. (Nov. 8th, 1913); "Text-book of Massage and Swedish Gymnastics," by Dr. T. D. Luke, Scientific Press, 1913, price 2s. 6d. (June 14th, 1913); "Massage and Swedish Movements," by Kurre W. Östom, H. K. Lewis, 1912, price 3s. 6d. (Oct. 19th, 1912); "Massage," by Mabel M. Pireau, revised by Dr. Gurney Champion, Scientific Press, 1912, price 2s. 6d. net (Feb. 1st, 1913).

H. S. (Beckenham).—The report forwarded by our correspondent has already appeared in full in THE LANCET.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Bakerian Lecture: Prof. W. H. Bragg: X Rays and Crystals.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—W. Langdon Brown, Philip Hamill, J. Gordon Sharp): at 4.30 P.M.

Professor A. R. Cushny, M.D., F.R.S.: (1) Notes on Diuresis; (2) Notes on the Antagonism of Drugs.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for the Election of Candidates to the Fellowship.

WEDNESDAY.

SECTION OF THE HISTORY OF MEDICINE (Hon. Secretaries—Raymond Crawford, Leonard G. Guthrie): at 5 P.M.

Professor A. R. Cushny, M.D., F.R.S.: William Withering.

Dr. J. A. Nixon: Thomas Baynton.

Dr. George C. Peachey: William Bronfield.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—S. E. Dore, A. M. H. Gray): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. G. Pernet: (1) Erythema Induratum (Bazin); (2) Iodide Eruption and Syphilis.

Dr. W. K. Sibley: Case for Diagnosis.

Dr. S. E. Dore and Dr. Kinnier Wilson: Case for Diagnosis.

Dr. H. G. Adamson: Macular Atrophy.

Mr. H. C. Samuel (introduced): Linear Nævus.

FRIDAY.

SECTION OF ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.

Clinical Meeting.

Members wishing to show cases, instruments, lantern slides, or skiagrams for diagnosis, are requested to send a short account of these as soon as possible to the Senior Hon. Secretary, Mr. Gilbert Scott, 6, Bentinck-street, W., so that a list may be sent to the Members before the Meeting.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Cases sent for Consultation. Demonstration of Pathological Specimens. Clinical Cases will be shown by Dr. M. Dockrell, Dr. J. L. Bunch, Dr. W. K. Sibley, Dr. S. Gooding, and Dr. C. H. Mills. 5 P.M., Paper:—Dr. A. D. Bremner: The Importance of Detail in the Treatment of Diseases of the Skin.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Paper:—Dr. F. L. Pyman: Some Interesting Drugs of Tropical Origin.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY.—5 P.M., Milroy Lecture:—Dr. E. L. Collis: Industrial Pneumoconioses, with Special Reference to Dust-phthisis.
 THURSDAY.—5 P.M., Lumleian Lecture:—Dr. S. Martin: Non-ulcerative Infections of the Colon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

WEDNESDAY, AND FRIDAY.—5 P.M., Prof. R. Farrant: The Effect of Toxins on the Tissues.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 12 noon, Lecture: Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

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THURSDAY.—3 P.M., Dr. A. Strahan: The Form and Structure of the London Basin. (Lecture I.)

FRIDAY.—9 P.M., Prof. G. H. Bryan: The Modern Piano Player—Scientific Aspects.

SATURDAY.—3 P.M., Prof. Sir J. J. Thomson, O.M.: Recent Researches on Atoms and Ions. (Lecture V.)

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Mr. H. Platt: Internal Derangements of the Knee-joint.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1914 were given in THE LANCET of Dec. 26th, 1914.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 10th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 4	30.00	S.W.	...	69	55	45	47	47	Raining
" 5	30.11	S.	...	83	55	47	48	50	Overcast
" 6	30.04	S.W.	...	83	58	47	46	47	Cloudy
" 7	30.09	N.W.	0.03	71	49	44	43	46	Cloudy
" 8	30.11	N.E.	...	76	42	37	36	38	Cloudy
" 9	30.42	N.E.	...	74	45	36	34	36	Cloudy
" 10	30.34	N.	...	57	45	36	37	39	Overcast

The following magazines, journals, &c., have been received:—

British Dental Journal, Medical Journal of South Africa, Magazine of the London (Royal Free Hospital) School of Medicine for Women, Proceedings of the Royal Society of Medicine, Cleveland Medical Journal, American Journal of Tropical Diseases and Preventive Medicine, Man, Journal of Tropical Medicine and Hygiene, Bulletin of Johns Hopkins Hospital, Medicinsk Arkiv, Transactions of the Society of Tropical Medicine and Hygiene, Concrete, Quarterly Journal of Experimental Physiology, Indian Medical Gazette, Dublin Journal of Medical Science, Canadian Medical Association Journal, Asylum News, Journal of Physiology, Public Health, Archives of Roentgen Rays, Edinburgh Medical Journal, &c.

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The Morison Lectures

ON

THE NEW PSYCHIATRY.

*Delivered before the Royal College of Physicians of Edinburgh
on March 8th, 10th, and 12th, 1915,*

By W. H. B. STODDART, M.D. LOND.,
F.R.C.P. LOND.,

LECTURER IN MENTAL DISEASE, ST. THOMAS'S HOSPITAL, ETC.

LECTURE I.

(Delivered on March 8th.)

FUNDAMENTAL PSYCHICAL MECHANISMS.

MR. PRESIDENT AND GENTLEMEN,—Before entering on my theme I wish to express my most sincere gratitude for the honour you have conferred on me by inviting me to deliver these lectures. To have my name associated with those of such eminent men as have preceded me in this chair is a dignity which I appreciate very highly, and it is also particularly gratifying to me to think that the founder, Sir Alexander Morison, was one of my predecessors as physician to Bethlem Royal Hospital in London. In those days the physician was non-resident; now he is resident, but it was a curious coincidence that I received your gracious invitation just as I had left my post of resident physician to that hospital to engage in consulting practice in Cavendish-square, within a few yards of Sir Alexander Morison's old house.

INTRODUCTORY REMARKS.

In respectful response to your kind invitation I have decided to expound the principles and practice of psycho-analysis rather than to weary you with crude trivialities of my own; for in the domain of mental disease this new psychiatry, which has not yet received sufficient recognition in this country, is one of the most important problems of the day. I have set myself the difficult task of compressing into the space of three hours the substance of a vast literature on an intrinsically difficult subject, concerning which a complete doctrine has not yet been elaborated, although an enormous amount of patient labour has been expended upon it during the last 20 years.

Psycho-analysis has, of course, met with captious criticism, the inevitable destiny of a new truth, and this has been especially severe in the case of our new psychiatry for four reasons: 1. The critics do not read psycho-analytic articles or they do so only superficially, so that they arrive at quite extraordinary misconceptions. 2. Not one of them has given the method a full and practical trial. 3. Basing their criticisms upon sentiment and prejudice, they assume an attitude of moral indignation or haughty contempt, seeking an answer to the question, "Are these principles to my liking?" instead of the question, "Are these principles true?" 4. The critics have been somewhat justified in that a number of medical men, especially in Germany, practise, in various sanatoriums and in private, what they conceive to be psycho-analysis, without having attempted to master the subject, with the result that they have done their patients more harm than good by filling their minds with all sorts of filthy ideas and making the most objectionable suggestions by way of therapeutic advice. I need hardly say that such charlatans, for they are neither more nor less, have through their ignorance

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brought discredit upon the new psychiatry which it does not deserve; for their methods, as I hope to show, are the very antithesis of those of psycho-analysis.

At the present time it would be asking too much of my audience to accept as a scientific truth doctrines which have had their birth in Austria and Germany, where truth appears to be monopolised by professors and divines for academic purposes only and scientific discoveries are prostituted for purposes of outrage and destruction of civilisation and all that civilisation means, were it not that I can give assurances that those doctrines have been tested and accepted by earnest workers and profound thinkers in Switzerland, America, and Great Britain. As a matter of fact, Freud himself has no German blood in him, but is a pure Jew, and, after all, science knows no nationality, and the account I present to you is an attempt at compromise between and combination of the opinions of many great men.

INSTINCT.

In order to gain a clear insight into the principles of abnormal psychology, let us by way of preliminary examine the human instincts.

Instinct is the blind prompting inherent in an animal to act without deliberation in a certain way. An instinctive action is practically perfect on the very first attempt, although there has been no previous education in its performance, and it is of such a nature as to produce certain ends without foresight of those ends. Instincts are perhaps most characteristic among the lower animals. As examples, sexual acts, migration, the first-year bird building her nest and sitting on her eggs, nutrition and care of the young, the lion stalking his prey, and the congregation of certain animals into shoals, flocks, and herds. In man one may instance the first attempt at speech by the human infant, the first attempts to walk, the avoidance of filth, making collections of all sorts of things, seeking the company of the opposite sex, nurture of the young, pulling down the blinds at night, and the congregation into towns and cities.

These are but a few examples, but even were the list complete it would be found possible to group all the instincts under two headings—viz., those subserving the function of preserving the individual and those subserving the function of perpetuating the race. They have also been classed into three categories, according as they are moved by the promptings of self-preservation, nutrition, or sex.

The Herd Instinct.

Now Dr. Wilfred Trotter, in two very able articles in the *Sociological Review* for 1908 and 1909, has drawn our attention to the existence and importance of a fourth instinct—gregariousness or, as he calls it, the herd instinct. Although this has long been recognised, it had never before been seriously contemplated and studied. When we come to think of it man is much more dependent upon communal life than appears at first sight. Left to himself he is not only extremely miserable, but his faculty of speech is useless to him and he stands little chance of survival among the other animals. Moreover, his conduct is very largely regulated by the customs of his tribe.

The advantage of gregariousness lies in the homogeneity of the herd, which enables large numbers to act in concert. In hunting and warfare, for example, the benefit of this is obvious, for the prey or enemy is more easily

vanquished by a large number of hunters than by a single unit. Such homogeneity is assured by an inherent impulse of each individual to behave in the same way as his fellows, and those who depart from the usual customs of the herd cease to benefit from the advantages of gregariousness, if they are not actually killed. The herd instinct, like other instincts, is maintained by natural selection.

So it happens that in company there is an unanalysable feeling of comfort; in solitude there is an unanalysable sense of restlessness and discomfort. This is just instinct. Similarly, if we depart from the customs of our particular "set" in matters of dress, amusement, religion, or politics, either we feel uncomfortable or we are regarded as eccentric and ostracised. Stage fright and shyness are the outcome of an instinctive desire to leave one's conspicuous position and to become once more one of the herd.

Dr. Bernard Hart recently drew my attention to the latter-day exemplification of the herd instinct in the fact that a man who worries about the ultimate result of the war ceases to do so when he enlists in Kitchener's army. He has the unconscious feeling of being within the fold.

Again, man is readily prepared to accept suggestions which are in accordance with the traditions of his particular herd; but he is disinclined to receive new truths which have been revealed by experience. People refused to look through Galileo's telescope, Darwin was considered a madman, the clinical thermometer was laughed at, people refuse to believe in vaccination or inoculation of any kind, new diseases are figments of the imagination of their discoverers, and psycho-analysis is immoral; because the new must always encounter the opposition of the herd tradition. But it must also be remembered that in such instances herd tradition has to encounter opposition from the new and may be gradually overcome until the experience becomes incorporated with the herd traditions.

In matters of opinion, however, such as politics, religion, finance, education, art, literature, and all sorts of public problems, the opinions of the people ranged on *both* sides are based on herd traditions, and no amount of argument will induce them to see the opposite point of view, or even to adopt the only rational position in such matters—viz., that of suspended judgment. On the contrary, they find more and more justification for the opinions they hold. In other words, belief comes first, reasons for the belief come second. This process is known as "rationalisation." It may, of course, be used in support of, or in opposition to, scientific truths; but even then "rationalisation" is dependent on the herd instinct for its existence.

How, then, are we to know whether any opinion we hold is rational or non-rational? If we find that we base the opinion on the feeling that any inquiry into the matter would be useless, barren, and superfluous, and that it is foolish, unpatriotic, wicked, or "bad form" to think otherwise, then it must be regarded as irrational, but if our opinion is based on experience then it is rational.

We have so far been discussing the influence of the herd instinct on intellectual processes, but we shall find that it also lies at the basis of our moral sentiments. Whenever a man does anything which he knows would meet with the disapprobation of his friends he experiences a feeling of uneasiness, similar to that caused by isolation, solitude or

separation from the tribe, a feeling of guilt, and when he does something which would be applauded by his fellows he has a sense of happiness and self-satisfaction. This is, then, the basis of moral sentiment with which the voice of conscience is indissolubly associated. A non-gregarious animal can do what it likes; it has only itself to consider.

Antagonism of Herd and Personal Instincts.

There is a fundamental difference between this herd instinct and the personal instincts of self-preservation, nutrition, and sex. These are dependent on the impulse of the moment; but the herd instinct is a controlling force from without, which is perpetually acting in antagonism to the other three. The child is taught from the cradle to respect the feelings of its companions, to resist its own impulses in order to protect others, to comply with their desires, and not to be selfish or greedy. And when the sexual passion asserts itself he finds that it is antagonised by a very strict code of conduct, with which it becomes his instinct to comply. Not only must such a passion be denied free play, but he must never allow his genitalia to be seen, and he must not discuss sexual topics or even think about them. The whole subject of sex is taboo, and this is one of the chief reasons why psycho-analysis has encountered severe antagonism. For a long time gynaecology was in the same position for a similar reason.

We find, then, that it is instinct which governs the whole of our mental life. Instinct is no more and no less than "psychical energy," the driving force of mentation to which Jung has applied the name "horme." This word "horme" has a wide signification, applicable to all the instincts, and corresponds with the word "libido" in reference to the sexual instinct. "Horme" means psychical energy, desire plus a conative trend. In short, I conceive it as being more or less synonymous with instinct, the driving force of our mental life. Every individual is endowed with a certain quantity of horme. Sometimes it is active in one direction, sometimes in another; it is never quiet. Comparable to physical energy, which may display itself as movement, sound, heat, light, electricity, or chemical action, it is never lost, and the principle of the conservation of energy is to be regarded as equally applicable to both psychical and physical energy. If a certain amount of horme or psychical energy in a given patient appears to be lost, it becomes our duty to discover where it has gone; but I will return to this subject later.

There is, as I have just suggested, a constant play between the instincts, one giving place to another as occasion arises; but when a herd impulse becomes displaced by the driving force of some other instinct mental conflict ensues; there is a situation to be faced, and a way out of the difficulty must be found. "Twixt love and duty" has always been a favourite theme with artists, novelists, poets, and philosophers. If duty fails—that is to say, if the herd instinct fails—some way must be found to pacify the guilty conscience.

The conflict may be resolved in one of four ways: First, the influence of the herd instinct may be recognised and its influence voluntarily ignored, the delinquent avowing to himself that he has a perfect right to do as he likes. The herd instinct is so strong that this process is, as a rule, difficult; but everybody knows that such unscrupulous persons undoubtedly exist.

Secondly, the offence may be condoned by "rationalisation," the offender excusing himself on the ground that he is otherwise a very good fellow. He goes to church regularly, subscribes to the charities, and is a good patriotic citizen, the logical fallacy here being, of course, the *ignoratio elenchi*.

Thirdly, the emotional tone or affect of worry may gradually pass off as years roll by, and he becomes occupied with other matters, in just the same way as we do not feel after the lapse of time the loss of a dear friend to the same extent as when we first hear the news of his death.

And lastly, the incident may refuse to become assimilated to the existing content of consciousness and be forgotten. The memory is banished from consciousness, but this does not mean that it is banished from the mind. It means that an attempt is made to repress it into a department of mentation from which it can never again enter phenomenal consciousness and disturb the normal stream of associative thought. Later on we shall have to discuss what happens should this repression subsequently fail, as it very frequently does.

THE UNCONSCIOUS.

This brings me to one of the fundamental bases of Freudian psychology—viz., the conception of the unconscious. At any given moment during a stream of thought there are only one or two ideas present in phenomenal consciousness. Under certain conditions in the psychological laboratory it is possible to demonstrate that as many as six or seven ideas may be present in consciousness at the same time, but in practical thought seldom more than two ideas occupy the field of attention. In close association with these ideas, however, at what is sometimes called the fringe of consciousness, but outside the field of attention for the moment, there is a much larger number of percepts, ideas, and other mental states. These have been grouped together for practical purposes and called the "subconscious." There still remains a large number of ideas and memories quite outside the field of attention, but capable of recall when required. These are known as the "foreconscious" or "preconscious."

Now there is an enormous number of ideas of past experiences, incidents, and situations which we cannot by any possibility remember, no matter how hard we try. For these there is a life-long amnesia. Nevertheless, they are not lost. They sometimes flash into the mind in moments of abstraction and during dreams; it is said that they are all passed in review during drowning, and they can be recovered by such artifices as hypnotism, crystal-gazing, and psycho-analysis. This group of ideas is called the "unconscious." The name is perhaps a little unfortunate, because "unconsciousness" has nothing to do with these phenomena, which were recognised in this country long before Freud's day and were described as "unconscious cerebration." I believe that the name was then the chief reason for their non-acceptance, for it was rightly contended that "unconscious cerebration" is a contradiction in terms. If hybrids were tolerated I would suggest some such name as "hypoconscious" for such mental states. It is not usually pretended that every incident that has ever happened in our lives is conserved in the unconscious (although Bergson says this), but it would certainly be true to say that all experiences which have been accompanied by a strong affective tone are conserved, even right back into early infancy.

PSYCHICAL DETERMINISM.

Another fundamental doctrine of Freudian psychology is that of "psychical determinism," which postulates that every mental process is predestined and fore-ordained. According to Jung, such predestination is due to the conscious activity of a higher power, God or world consciousness; but Freud ascribes it to an unerring scientific law of causation.

While recognising that there are certain characteristic tendencies and reactions, physical and psychical, common to all mankind and given to us by heredity and evolution (the inherited instincts already mentioned), we must also take into account the fact that the experiences of every one of us differ from those of all other people. Instinct is the driving force which causes A and B to act in the same way when confronted with a given situation, but their thoughts and actions in association therewith are differently carried out because their individual experiences are entirely different. These and other considerations, to be discussed presently, led Freud to the study of "individual psychology," one outcome of which has been the enunciation of the doctrine that for every psychic fact there have been efficient and logical antecedent causative mental states in the present life-history of the individual, and that there is a continuity of mental associations from the cradle to the grave. In other words, there is no such thing as chance in the determination of a thought.

To take a favourite example. Suppose I ask you to think of a number and you take the trouble to investigate your particular association with the number selected, you will find that the number has some relationship with an item of your experience associated with the present content of your consciousness. Under the circumstances no other number could have occurred to your mind; the mental process concerned is absolutely governed by the laws of association of ideas.

COMPLEXES.

The number is one unit of a constellation of ideas, another unit of which is one idea now present in your consciousness. When such a constellation is repressed and partly unconscious it is known as a "complex." I give a few examples to make my meaning clear.

While preparing these lectures, any patient exhibiting a good example of mental processes I am now endeavouring to explain caused me to think of the Morison lectures, as also did mannerisms of people I met in the street, certain items of information in books, thoughts of the unconscious motives of war and incidents of psychological interest on the battlefield, papers read to less distinguished audiences, mental facts in my own life, and a host of other things. In other words, I have had a "Morison lecture" constellation of ideas. It has not been repressed and should therefore not be called a complex.

I meet a man in the street who at one time did me considerable injury by reason of certain jealousies, &c. He is the centre of a number of ideas of difficult situations and incidents which caused me perplexity at the time, but are now repressed and partly forgotten; but I feel vexed when I see him. This is one of my complexes.

A favourite example is that of a young man in love. His emotional state tends to constellate all his ideas to the one central figure, his lady-love, no matter how remote the association may be. The

act of writing at his office desk reminds him of writing to his adored one, a luxurious motor-car makes him think how she would look in it, a chance resemblance causes him to wonder "Is it she?"; the sermon at church contains many allusions to his love for her, and all nature echoes his happiness. It is the "love" constellation or complex.

In fact, the whole of our unconscious mind is made up of complexes, and the total mass of these taken together constitutes the "ego complex." A complex, then, may be defined as a repressed system of ideas having a constant conative trend or emotional tone and directed towards determinate actions and thoughts. A complex is therefore possessed of a certain amount of energy, and since complexes can generally be referred to some instinct we may regard this energy as a manifestation of the hormone we have already discussed. The liberation of this energy by discharge, either by an outburst of emotion or by the fulfilment or realisation of the conative object of the complex, is known as "abreaction." Abreaction of the love complex, for example, is the possession of the desired object of affection.

CONFLICT.

We are now in a position to consider in rather more detail the phenomenon of "conflict." When there develop in the mind two complexes which are out of harmony with one another, and mutually repel or paralyse each other, conflict ensues. A hypothetical instance of conflict between two nutrition complexes is given in the fable of the animal which died of starvation when, suffering equally from hunger and thirst, it found itself midway between a basket of food and a pail of water. Conflict occurs between two self-preservation complexes when a man finds himself stranded on the High Alps, when inactivity means death from starvation, and an attempt to reach the valley threatens death from precipitation. Conflict arises when a man finds he has fallen in love with two women at the same time. But conflict never arises between a nutrition complex and a sexual complex, or between a self-preservation complex and a nutrition complex, unless, of course, the nutrition complex is so urgent (as in the above instance) that it constitutes at the same time a self-preservation complex. Conflict between a sexual complex and a self-preservation complex is fairly common, and either may win, as in the question of plunging into a marriage which is inimical to one's life interests or facing death to save a loved one from danger.

In practical experience, however, we find that by far the greater majority of conflicts occur between a personal complex and a herd complex—that is to say, between morality, religion, ethics, or fashion, on the one hand, and nutrition, self-preservation, or sex on the other. Now the only ways in which nutrition complexes and self-preservation complexes can conflict with the herd instinct are by such crimes as murder, theft, and dishonesty; but there is only one way in which satisfaction of the sexual instinct does not conflict with the herd instinct—viz., by legitimate wedlock. Masturbation, homosexuality, adultery, incest, fetichism, sadism, exhibitionism, and bestiality, many of which are exceedingly common, are all under the ban of the herd; and as a matter of practical experience by far the majority of conflicts, which we find on psycho-analysis to lie at the root of the neuroses and psychoses, are between a sexual and a herd complex.

Now a conflict cannot be allowed to persist for ever. It is a biological necessity that some way out of the difficulty must be found. The normal and logical way out of the situation is to face it, to recognise that there is a conflict, to consider what is the right and proper course to pursue and to take that course, at the same time admitting to oneself that such a conflict has existed.

Evasion of Conflict.

If, on the other hand, the victim refuses to face the situation and attempts to evade it, this may be done, as I have already mentioned, in one of four ways.

First, he may recognise the influence of the herd instinct and refuse to be guided by it. In my experience this is, as a rule, not very successful. The herd instinct is a true instinct and refuses to be repressed, with the result that the patient suffers from remorse, usually accompanied by an unexplained headache and other neurasthenic symptoms which are very difficult to dislodge.

Secondly, he may seek refuge in "rationalisation," keeping his conflicting personal complex in a "logic-tight compartment" of the mind. The swindling financier refuses to acknowledge to himself that he, as a financier, is the same individual who reads the lessons at church and built the local almshouses, or he condones his swindles with acts of piety and charity. This is an example of what is known as "dissociation" or, as Janet calls it, the "splitting of consciousness." This phenomenon occurs quite commonly when, for example, we converse on one subject and write a letter about another, and it is quite possible for our financier, while reading the lessons, to be at the same time devising some scheme whereby he may succeed in transferring somebody else's banking account to his own.

In pathological domains we observe a similar splitting of consciousness in the general paralytic who, while believing himself to be God Almighty, begs his attendant for a cigarette, or in the asylum queen who is elated in being the chosen patient to wait on the nurses. Dissociation occurs also during the "automatic writing" of certain hysterical patients. If such a patient be given a pencil and a piece of paper and be held in conversation while a third person whispers questions into the patient's ear, she will correctly answer the questions by writing, all the while being unconscious of the fact that she is writing.

Another variety of dissociation occurs in the cases of "double consciousness." Here the patient has two entirely different personalities, each being independent and unaware of the existence of the other. Robert Louis Stevenson has dramatised the condition in the familiar play "Dr. Jekyll and Mr. Hyde," and I need not quote the well-known case of the Rev. Ansel Bourne, reported by James and Weir-Mitchell. Marandon de Montyel placed on record the case of a man who remembered nothing between being about his business in Paris and returning to his normal personality on board a ship bound for Bombay. Records of many similar cases are to be found distributed throughout the literature.

Thirdly, our victim of conflict may allow the energy of his complex to be diverted into other channels than the natural one. This process is called "sublimation," and the best examples are again to be found in the domain of sex. The old maid has at one time been possessed of a sexual instinct quite as strong as that of her married

sisters, but its natural outlet has been denied her. What outlets can she find for her pent-up energy? She devotes much to dress, which is often extravagant, or she indulges in all sorts of gaieties, or she takes to nursing, or, by a kind of transference, she interests herself in society news, especially of the type to be found in so-called "society newspapers," and she loves to read the details of marriages and scandals. Moreover, her maternal complex has to be satisfied, and she reads the columns of births daily and bestows her maternal affection on cats, dogs, and parrots.

A man may sublimate his sexual instinct into dangerous sports. In the early days of aviation, when it was much more dangerous than it is now, an acquaintance of mine took to this sport when the circumstances of his marriage became somewhat distressing. Sexual sublimation in men also takes the form of academic interests, increased professional activity, travel, collecting manias, and alcoholic excesses. For reasons which need not be discussed for the present Freud regards smoking as being frequently a sexual sublimation; but I am sure that it is a common sublimation of other complexes.

Sometimes sublimation takes the form of inversion or representation of the opposite. The old maid, for example, often betrays her sexual complex by extreme prudery or by devoting herself to excessive religious exercises. Displacement of masturbation usually takes the form of the victim handling his body in other ways, such as nail-picking, nail-biting, or nose-picking; but these should not be called sublimations, because this term always means diversion to useful social aims.

Fourthly, lastly and most important of all, the conflicting personal complex may refuse to become assimilated to the normal content of consciousness and become forgotten. Perhaps a better way of putting this is to say that the victim refuses to admit to himself that such a complex ever existed. The popular way of expressing this is to say that he "puts it out of his mind," but what really happens is, as we shall see later, that he puts it into his mind, pushes it in deeper into the unconscious or, as we say technically, "represses" it. This is the phenomenon of "repression," really another form of "dissociation" or "splitting of consciousness." It differs, however, from the previously discussed variety in that a complex dissociated by repression has an autonomous existence. There is a constant resistance against the elements of a repressed complex becoming associated with those of phenomenal consciousness. This resistance, which is nothing more than a continuation of the original repression, is called by Freud the "censor," and has been personified by his English and American translators into the "censor."

Results of Repression.

Now it is clear that it must be a very difficult matter for the normal train of thought to proceed year in and year out without once touching upon some idea which tends to become associated with some element of the repressed complex. Such ideas and other mental states are bound to occur, and since the "censor" will not allow repressed ideas to enter consciousness, the only possible alternative is that conscious ideas become anchored to the unconscious complex. The result is that the unconscious tends to grow at the expense of the conscious; and it may be taken as a rule that the greater the emotional tone of the original complex

the greater does that complex grow when it becomes unconscious. The fact that the unconscious grows constantly at the expense of the conscious explains why a case of long duration takes so much longer to cure than a case of recent onset.

"Dissociation" and "repression" are closely allied to one another, and it will also be observed that "sublimation" usually involves "repression." The old maid's prudery is an obviously successful method of repressing her sexual complex, and her fondness for domestic pets subserves the repression of her maternal complex.

It is not to be supposed that sublimation and repression are usually pathological or abnormal. On the contrary, they take place to an enormous extent in the earlier years of us all, and play an important rôle in early education whereby our naturally vicious animal energies are repressed into the unconscious and sublimated into useful activities. It follows that our unconscious consists for the most part of infantile complexes, and this accounts to some extent for the amnesia which veils the first years of childhood. It is true that this amnesia is partly due to the fact that many of the cerebral neurons are not yet myelinated, but that this is not the only reason is evidenced by the fact that the amnesia is here and there broken by isolated memories of unimportant incidents. Freud has called these "cover-memories" because they serve to displace memories of important events.

When these repressions or sublimations for any reason fail we have the conditions necessary for the development of neurosis or psychosis, conflict occurring between the repressed complex and the existing content of phenomenal consciousness. Under such circumstances the complex escaping from repression is distorted and disguised by way of an attempt to render it acceptable to consciousness, and its distorted manifestations constitute the symptoms of the disease. Solution of the difficulty and cure of the disease are accomplished by revealing to the patient through his own association mechanisms the full content of the repressed complex. How this is to be done I will explain in my next lecture.

I have already mentioned that complexes related to the sexual instinct are repressed more than any other. It is therefore not surprising to find that these play an enormous rôle in the psychoses, and a knowledge of the development of the sexual instinct is so essential to any comprehension of the new psychiatry that I must discuss this matter in some detail. I ought to say that this knowledge has been gained, in the first instance, entirely through psycho-analysis.

THE SEXUAL INSTINCT.

Those members of my audience who have devoted their attention to the study of disease in children, especially nervous disease, will be the first to admit that sexuality is not a function which suddenly springs into being at puberty, but that it gradually develops from small beginnings in the earliest infancy. Freud considers that sucking the mother's breast is partly a sexual act, but Jung dissents from this view and considers the act of sucking the breast to be purely nutritive in function. Both these leaders of thought agree, however, that thumb-sucking, which follows shortly afterwards, is of undoubted sexual import, and many shrewd mothers are independently capable of discerning masturbatory significance in this common infantile action. Indeed, any action in

which the child habitually handles the body, such as nose-picking, nail-biting, or rubbing its abdomen, is to be regarded as betokening a masturbation complex.

Now in adult life many of the sense organs are capable of stimulating the sexual instinct: for example, the eye (in seeing a beautiful face or figure), the ear (in hearing a beautiful voice or the rustle of a dress), the nose (in sensing certain odours characteristic of the opposite sex), and the skin (in feeling the skin of a member of the opposite sex, or even, with some people, experiencing a sense of pain); but the centre of maximal stimulus is the genital organ. In the child, however, there is no centre of maximal stimulation to be discovered, the pleasure-arousing area being equally diffused all over the body, and therefore so much the less stimulating in any given zone.

Erogenous Zones.

Freud has discovered, however, that even in the young child there are certain areas the irritation of which produces greater gratification than elsewhere. Although these lie at the foundation of the sexual instinct, it is not suggested that the child himself has any idea of the nature and significance of these sensations. These areas, which I am about to mention, have been called by Freud the "erogenous zones."

I have already referred to the mouth. Freud and others discern something of the nature of an orgasm when a satisfied baby becomes flushed, leaves the breast, and sinks into slumber. It has also been observed that thumb-suckers are liable to manipulate or rub their breasts during pleasure-sucking, and this is said to be the first step towards masturbation. Energetic suckers in infancy are said to be very fond of kissing when they reach adult life and, if at any time the complex becomes repressed, there are produced such symptoms as hysterical vomiting, aversion from eating, hysterical globus, choking sensations, snoring in the throat, and disturbances in eating. These are some of the arguments used in support of the view that the mouth is an erogenous zone, and some of the symptoms suggest that Freud is right in his view that breast-sucking for the purpose of nourishment is partly of sexual import. It is at least obvious that the first sensory stimulus the mouth receives is from the mother's breast, and our other considerations suggest that the baby's mouth should not be stimulated more than is necessary for purposes of nutrition. This is an argument I have not previously heard against the use of "dummies" or "comforters."

Another important erogenous zone lies at the other end of the alimentary canal, the anus. It is often observed that the "intestinal catarrhs" of infancy give rise to "nervousness," but the erogenous significance of the anus is noticeable in children who voluntarily retain their faeces until violent muscular contractions necessitate compulsion. The pain caused by the passage of the larger accumulation is accompanied by a pleasurable sensation which the child seeks to experience again. It is a variety of masturbation. This habit, which is a sure premonition of subsequent eccentricity or neurosis, plays an important part in the production of the constipation so common in neurotic patients, and Ernest Jones has recently shown that it lies at the foundation of the sadistic complex which is responsible for the compulsion neurosis. Incidentally I may mention that a large

number of such patients have private secret customs and ceremonials of their own which they habitually observe when they retire to evacuate their bowels. People who have succeeded in repressing the complex become in after life methodical, thrifty, and headstrong. It would appear that the desire to retain faeces becomes sublimated into the desire to retain money, and those of you who have had experience of psycho-analysis know how commonly in the neurotic "faeces" symbolises "money."

The third erogenous zone is the neck of the bladder. Freud has discovered that whenever enuresis nocturna is not caused by epilepsy it represents a pollution corresponding to a sexual dream. It may, of course, have its physical causes, such as adhesion of the prepuce, but that does not affect the main question. It is not commonly apprehended that bed-wetting is a source of gratification to the infant. Bed-wetting in childhood plays an important rôle when neurosis develops in after life.

The fourth erogenous zone is the inner surface of the thighs. Pleasure experienced by rubbing the thighs together is often to be observed in quite young infants, especially females.

Even in the earliest years, therefore, there is a tendency for such pleasurable sensations to be localised in the neighbourhood of the genital area, and Nature appears to have made special provision for their periodical excitation by uncleanness and consequent cleansing.

Later Periods.

The period we have been discussing is characterised by the infant finding a kind of gratification in the stimulation of parts of its own body. About the third or fourth year, however, the whole of this infantile sexuality becomes repressed by education and by the development of feelings of shame, loathing, disgust, and morality. It is during this stage of repression, the "latency period" as it is called, that the infantile germs of sexuality become sublimated and applied to refining, cultural, and social ends; but should misadventure or adversity befall this sublimating process, the child is destined to become the victim of neurosis.

From the fifth or sixth year onwards, in what Jung has termed the "pre-pubertal period," we begin to observe a recrudescence of sexuality, but it differs from the first period in that the child now strives to come into closer relationship with the outside world. The first was a period of "subject love" or auto-eroticism; this is a period of "object love," and the child seeks to love somebody other than itself. Naturally the first object of its affection is the person with whom it is brought into closest relationship—viz., the mother or the nurse. This is, of course, due to a feeling of dependence, and is therefore very strong. Even as early as this we can discern some psychical differentiation between the sexes, for the boy's love is mostly directed towards his mother and the girl's towards her father. It is also to be noticed that a boy loves his sisters more than his brothers, and a girl loves her brothers more than her sisters. Even childish love affairs with others are of greater significance than is usually thought. It has been erroneously supposed that fixation of a boy's love on his father or a girl's love on her mother, during this undifferentiated period, laid the foundations of inversion or homosexuality, either manifest or unconscious; but psycho-analytic

experience gives no support to this view. On the contrary, it is found, curiously enough, that inversion arises from fixation on and identification with the parent of the opposite sex, as I shall explain presently.

Sexual Perversities.

The child's sexuality at this stage is, as Freud has termed it, "polymorphous-perverse," and untoward incidents are liable to direct his instinct into wrong channels. Encouragement of the natural tendency to undress before others may lead to exhibitionism; the habit of inspecting one another's genitals, if opportunity is allowed, may lead to the "peeping tendency" and desire to see the genitals of others, especially of their elders. Such curiosity begets an aggressive disposition, which in turn serves as a groundwork for the sadistic instinct, whose special feature is the association of cruelty with the sexual impulse. Masochism, in which the sexual impulse is aroused by certain experiences of mental or physical pain, can most often be traced to punishments inflicted during childhood.

Inversion or homosexuality arises in this way. It is normal for the child to develop curiosity respecting sex and birth processes. Indeed, it is only natural that he should want to know where a new brother or sister comes from, for such a person threatens to displace him and to absorb the love of his mother which has previously been lavished on him. He is jealous; but this is a digression. The normal boy imagines all people, including his mother, to be fashioned like himself in every detail. Accordingly, if the time when he is disillusioned arrives too late, when incest barriers demand that his affection should be transferred elsewhere, he can only fall in love with a person fashioned like himself. Such individuals, therefore, seek as cohabitators either boys or effeminate men. Girls who develop the converse phantasy become homosexuals in a similar way.

As I have just hinted, the normal change which takes place at puberty is the erection of incest barriers, whereby the love for the parents becomes gradually weakened as the adolescent becomes attracted to persons of the same age but of the opposite sex. I say "of the opposite sex," but it must be remembered that the sweetheart is of the same sex as the child's first love. Moreover, the parents usually serve as an unconscious pattern for the mates of young people. Boys have a natural inclination to some girl resembling their mother, and girls to some boy resembling their father.

There are some individuals who linger over intermediate sexual attractions so that their libido becomes permanently fixated on these instead of passing them over rapidly on the way to an ultimate sexual goal. Such a condition is known as fetichism, and the victims are fetichists. They find an ultimate sexual goal in seeing or feeling the hand, foot, or hair of a woman, or in hearing her voice, or their libido becomes fixated on some impersonal object, such as a shoe, a handkerchief, fur, velvet, &c.

When these perversities are manifest to any given person and self-avowed they do no harm to his nervous system; indeed, many perverts have shown themselves to be of exceptional intellectual ability. Voltaire has confessed to systematic masturbation, Rousseau was an avowed masochist, and it will be easy for you to recall the names of homosexuals of great ability in professional directions; but when such perversities are repressed in an individual he constantly runs the risk of

neurosis through his repressed complex escaping the repression. If, for example, a repressed homosexual—that is to say, a person who has developed unconscious homosexual tendencies and does not know it—gets married he is almost certain to develop neurosis or psychosis.

Now when conflict arises between a repressed complex and phenomenal consciousness—in other words, when an unconscious complex strives for recognition, and consciousness, or perhaps I ought to rather say subconsciousness, endeavours to maintain the repression—neither one nor the other achieves success, and the result of the conflict is a compromise, this being none other than a symptom or group of symptoms of neurosis or psychosis. The discussion of the various mechanisms which come into play in this process I will postpone until the consideration of dreams in my next lecture, for the mechanism of dreams is almost exactly the same as that of the insanities. We shall find that, in its attempt to escape repression, a complex becomes distorted and disguises itself in such a way that its true nature is not revealed to consciousness.

Nature of Infantile Complexes.

Some of the infantile complexes to which I have referred will still remain somewhat obscure unless their nature is fully apprehended, and I must revert to the relationship between parents and children as it is unconsciously conceived by the child. As I have already submitted, the mother is the boy's and the father is the girl's favourite parent. Now this means a great deal more than appears at first sight, for it has been established from the study of children and from the dreams of adults that the boy's love for his mother is of such a character that he resents sharing his mother's love with anyone else, especially the father. A very large number of boys ask their mother at some time or other whether she loves him or "daddy" the more, and the child usually receives (quite rightly from an educational point of view) a disappointing answer. The boy is jealous of his father and, similarly, the girl is jealous of her mother. Each, in fact, wishes the parent of the same sex out of the way, and may go so far as to dream of the death of this parent. We shall see in the next lecture that a dream is the realisation of a wish.

This incest complex, which exists in the unconscious of every individual, normal or abnormal, is known in the case of a man as the *Œdipus complex*, and in the case of a woman as the *Electra complex*. *Œdipus* was a king of Thebes who had the misfortune to slay his own father and unwittingly to marry his mother. *Electra* was the daughter of *Agamemnon* and *Clytemnestra*; she assisted in the murder of her own mother to avenge the death of her father.

In a very large number of cases it can be demonstrated by psycho-analysis that such complexes play an important part. We expect to discover it especially in patients who, in spite of normal heterosexuality and in spite of encountering many opportunities of, and even calls to, marriage, have reached middle age without having engaged in matrimony. This is especially to be found in only children, whose fixation of libido upon their parents is exceptionally difficult of transference elsewhere, and whose parents tend to foster the delusion that there does not exist in the wide world a suitable mate for their darling child.

LOW LEVEL OF THE UNCONSCIOUS MIND.

The conclusion at which we have arrived from all these considerations is that our unconscious mind is on a lower, less mental, more neural, and more animal plane than our conscious mind, and it is pervaded with sexual thoughts and desires. Indeed, I believe that I am not misrepresenting Freud when I say that he thinks that the unconscious mind is almost all sexual; but then it must be recognised that he uses the word "sexual" in a very wide sense. Attraction, friendliness, shame, modesty, and disgust are all included under this term by Freud. Nevertheless, psycho-analysis has revealed that if our repressed mental material had free play, uncontrolled by consciousness, every one of us "would probably remain a selfish, impulsive, aggressive, dirty, immodest, cruel, egocentric, and conceited animal, inconsiderate of the needs of others and unmindful of the complicated social and ethical standards that go to make civilised society."¹

To the ordinary man whose "herd instinct" has repressed such intolerable features of his character into the unconscious and converted him into a moral, social, ethical, modest, and æsthetic being, it is incredible and absurd that his mental constitution and disposition are fundamentally so brutal. He is prepared to accept the fact that his anatomical and physiological characteristics are identical with those of the lower animals; but his mental characteristics—never! And so from time to time we find in the medical journals energetic objections to our new psychiatry, of course by people who have not studied it. These letters are interesting examples of what is technically known as the "resistance," which we shall study in our next lecture, and are unwitting arguments in support of Freudian doctrines.

In the *Medical Press and Circular* for June 13th, 1894, is to be found a paper by the late Dr. Hughlings Jackson, entitled "The Factors of Insanities," and it will be there seen that that great man foresaw the fundamental principles of our new psychiatry. He pointed out that there is a positive and a negative element in every case of insanity, the negative being defect of consciousness or loss of some consciousness, the positive being activity of the consciousness remaining (on a lower level). For example, when a patient believes himself to be the Emperor of Europe, Hughlings Jackson points out that the chief defect (negative element) of consciousness is that he does not know that he is a clerk in the City, and the notion that he is the Emperor of Europe is due to the positive activity of a lower level of mentation. This is exactly what has been proved by our modern school of psychiatry. So far as consciousness is concerned, we know that it always loses something of its content, a complex which is repressed into the unconscious, while the positive symptoms of an insanity are due to the distorted activities of the unconscious (a lower level of mentation). While, therefore, we study and admire the insight and patient labour of the great Austrian psychologist, Professor Freud of Vienna, let us at the same time pay homage to the great English father of neurology, who taught us to understand the nervous system, Dr. Hughlings Jackson.

¹ Ernest Jones: British Medical Association Annual Meeting, 1914.

Sir Alfred Pearce Gould has presented to the Middlesex Hospital the armchair used by the late Lord Lister during his last illness.

FROST-BITE IN THE PRESENT WAR.

By C. MAX PAGE, M.S. LOND., F.R.C.S. ENG.,
CAPTAIN, R.A.M.C. (S.R.).

THE term "frost-bite" has been applied to a condition which during the past months has led to the invaliding of a large number of our troops. That the term is an unsatisfactory one must be admitted, for a large percentage of the cases result from exposure to wet at a time when the temperature is above freezing point. None the less, as the same condition may be produced by frost, it would only be confusing to alter the nomenclature. On the Turkish side in the late Balkan War, before any frost had set in, the incidence of a condition allied to frost-bite was noted.¹ The fact that extensive gangrene was common was presumably due to the poor nutrition of the men and the inadequate medical organisation. The same statements are true for a certain period of the Crimean War.²

As in spite of prophylactic measures a certain incidence of the condition may be expected for a month or so yet, it seems worth while to note the phenomena of the condition as seen in a Base Hospital in France, and quote the results of treatment hitherto adopted. Some 332 cases classified as frost-bite have passed through this hospital (No. 2 Stationary). The majority of the cases have been sent on to England after being under treatment here for a few days; but systematic observations were made on 30 average cases over a period of two to three weeks, with a view to determining the period of invalidity and the results of various forms of treatment.

Examining the whole series of cases, in only 5 was macroscopic gangrene present. As the treatment and course of the disease in this class of the condition are well defined it will not be referred to in these notes. In all cases both feet were affected, usually with about the same severity. In only 2 cases were the hands involved as well.

General Etiology.

The cases give a consistently regular history of exposure in wet trenches for periods varying from 24 to 72 hours. The weather is said to have been cold, but frost was said to have been present in only about 10 per cent. of the cases. The nutrition of the subjects has been good, and in no case have they been starved. In most cases nerve-strain and lack of sleep have been factors which may have had an effect. As a rule the cases exposed to frost after wet have shown the most severe lesions.

Pathology.

The actual process rests upon surmise, but appears to be as follows. The capillary circulation is slowed by surface chill. At the same time the general circulation is sluggish from bodily inactivity. Prolonged standing promotes blood stasis in the feet, and in some cases may be a concomitant factor. This stasis damages the capillary wall and exudation takes place. This will tend further to check the blood-supply to the feet, and in severe cases leads to gangrene of a greater or less part of the foot.

If this swelling occurs while the boot is still on the skin is exposed to pressure. This pressure produces the sensory changes which are noted below. This latter statement is supported by the following observations: 1. When the hands are involved the type of anæsthesia seen regularly in

¹ Gangrene in War, British Medical Association, July, 1914.

² Ibid.

the feet does not appear. 2. In cases of any severity the skin of the toes, being limited and tight, always becomes anæsthetic. In cases of moderate severity with anæsthesia of the dorsum of the foot the skin under the instep often remains sensitive, it being the part of the foot least exposed to pressure from a boot. 3. If a man's foot be covered with lint or a sock and then firmly bandaged from the toes upwards with a Martin's rubber bandage and so left for three or four hours, anæsthesia of the skin of the toes and neighbouring part of the dorsum of the foot sets in and persists for a day or two.

Clinical Signs.

Excluding instances of gangrene, three types of case may be defined: 1. Where there are no signs to the naked eye, but where anæsthesia of the functional type is the prominent feature. 2. Where there are no signs beyond slight œdema, but where organic sensory changes are found. 3. Cases where in addition to organic sensory change there are gross œdema and bleb formation. These three types, it will be seen, are not pathological entities and may overlap, but they are useful as a basis upon which to form a prognosis.

The signs and course of these three classes of the condition may now be considered in more detail.

Type I.—This usually appears in young men either nervous or sullen in mien. To general observation there are no objective signs. They walk poorly, keeping the weight on the heels; the gait often improves when they do not know they are under observation. On testing sensation with the point of a pin anæsthesia will be present, sometimes to a level 5 or 6 inches above the knee. The upper margin of anæsthesia is sharply defined and of the "stocking" type; loss of sensation to wool is present over exactly the same area. The level of the anæsthesia is liable to vary if successive observations are made on the same day. Pressure sensation is absent, and the subjects will say they do not know the foot is being touched, even when movement of the whole limb has been involved. The reflexes are normal or slightly diminished. Voluntary movement of the toes appears to be impaired. If such cases are treated with the faradic current the anæsthesia rapidly disappears (often after one application in this series). It may then be found that a condition indistinguishable from that of Type II. persists. The only difference in the subsequent course of the case is that these patients tend to complain of subjective sensations in the feet to an exceptional degree. Four cases of this class were noted in 30 consecutive cases, and I think the incidence for the bulk is about the same. It will be seen that the prognosis must depend mainly on the degree of organic disease present. As stated, it is usually slight or even negligible. On the average, with firm treatment, these cases are fit for duty again in from 7 to 14 days.

Type II.—The only objective sign in this type is slight œdema, which on admission can usually be noted below the ankles. This swelling commonly disappears after 24 hours' recumbency. In all cases the subjects state that their feet were swollen at the time of onset of the condition. On testing the sensation with a pin anæsthesia over the dorsum of the toes is constantly present; it commonly extends on to the dorsum of the foot for 2 or 3 inches, and may extend to the level of the ankle-joint. The thin skin of the sole is sometimes sensitive, sometimes anæsthetic. On testing with wool the area insensitive to light touch

corresponds with, but is not quite as extensive as, the area of anæsthesia; there is definite loss in the acuteness of sensibility in the marginal zone. Sensation to deep pressure is normal. As the cure progresses the depth of the anæsthesia lessens, till in a week or less it is limited to the dorsum of the toes; contemporaneously sensibility to light touch recovers much more rapidly. At the end of a week some degree of hyperæsthesia may develop and persist for a few days. During this period various types of pain in the feet, ankles, and calves may be complained of. On admission voluntary movement of the toes is weak, and unless the feet be massaged this condition may persist for a couple of weeks. The toes often appear to be kept slightly dorsiflexed. In the hyperæsthetic period passive movement of the toes is usually painful. From half to two-thirds of the average cases are of this type. In the series of 30 noted 19 of this type were recorded, and 9 of them were fit for discharge from hospital in about 14 days.

Type III.—The objective signs are well-marked—œdema, bleb formation, and ecchymoses. The œdema is most prominent over the dorsum of the foot and below the malleoli, but it may extend two-thirds of the distance up the leg. After a few days in bed the major part passes off, but some swelling about the external malleolus may be present for a fortnight. The blebs are usually on or near the toes, and may contain blood. They seldom become infected if snipped and evacuated at an early stage. Small petechiæ may be seen at the bases of the nails in many cases. The sensory changes are similar to those seen in Type II., but in general are more extensive; anæsthesia over the whole area covered by the boot may be present for a day or two. Recovery seems to be rather slower than in Type II., but shows the same difference between anæsthesia to the pin and loss of sensibility, both conditions being thus clearly separable from the condition in Type I., which presents a typical functional anæsthesia. These cases almost all develop a stage in which there are marked hyperæsthesia of the skin and pain on moving the toes. At this time the skin is hyperæmic, and the foot feels hot as a whole. This hyperæsthetic stage comes on in about one week from the commencement of the attack, and may persist for another. The loss of movement in the toes is similar, but more marked and persistent than in Type II. Seven cases in 30 were of this variety. No case was really fit for duty within 18 days, the limit of my observation in these cases.

Treatment.

The classical treatment of frost-bite is mainly directed to obtaining a moderate general circulatory reaction in the part affected. In the class of the condition under consideration there is no failure of return of circulation, and efforts are directed to procure a rapid convalescence and relieve the subjective sensations. In this series treatment of various kinds has in symmetrical cases been applied to one foot only. The control foot has been cleaned up with spirit, dusted with powder, covered with wool, and then left to itself. Blebs if present were snipped and emptied of their contents.

Active treatment may be in the nature of: (a) curative, and (b) symptomatic.

(a) The curative methods tried were all local; no drugs (excepting calcium chloride) having a general effect in the capillary circulation were given. The rationale of these local methods is to improve the nutrition of the foot by promoting the capillary

circulation. Four types of agent were employed—viz.: 1. Counter-irritants: tincture of iodine, oil of turpentine, and liniment of camphor. The lotions were applied on lint and the foot covered with wool and loosely bandaged. 2. Production of hyperæmia by physical means: hot fomentations, hot baths, and Bier's congestive bandage. Hot-air baths would seem the soundest method, but are not readily available under service conditions. 3. Massage. 4. Electrical stimulation: the faradic current alone was used.

Results of curative methods.—1. None of the counter-irritants above mentioned appear materially to affect the speed of recovery, either in relation to the disappearance of the anaesthesia or return of movement in the toes. All of them inconstantly relieved pain for a short period, and for a time proved comforting. Oil of turpentine frequently produced vesication, and was always followed by desquamation of the skin of the foot. The same is true of tincture of iodine in a less degree. This desquamation may be so severe that in slight cases the tenderness of the newly exposed skin prolongs convalescence after the primary condition is cured.

2. Hot baths (half an hour twice daily at 105° F.) in two cases definitely expedited the appearance of hyperæsthesia. The treatment could not comfortably be continued after its appearance. Hot fomentations are similar in their effects, but are liable to render the skin sodden. Congestion by rubber bandage was applied for one hour twice daily in cases without oedema. It did not appear to influence the course of the disease in either direction. In two instances it was applied for three or four hours at a time and relieved deep pains for a few hours afterwards. This application frequently produced fine ecchymoses in the foot and leg.

3. Massage in all cases in which it was tried accelerated the onset of hyperæsthesia. At this stage it could only be continued if most delicately applied. In all cases nearing the convalescent period it improved the movement of the toes, and so hastened effective recovery.

4. Stroking the legs and feet with the electrodes through which a faradic current was passing proved most efficacious in removing anaesthesia of the functional kind (Type I.). It had no influence on the recovery of the sensory lesions in the organic cases.

(b) *Symptomatic treatment.*—Attempts to relieve hyperæsthesia or the various subjective pains were made by the local application of pure glycerine on lint. This proved satisfactory in a few cases; it also has the merit of keeping the skin in good condition. As mentioned above, the counter-irritants sometimes have a soothing effect for a period. Aspirin and phenacetin were the only drugs given for the relief of pain. Doses either singly or combined, up to 80 grains in 24 hours, were said not to give much relief in severe cases. It was found that in the hyperæsthetic period (period of late reaction) the patient was more comfortable if the feet were raised on a pillow and exposed to the air or but lightly covered. Evaporating lotions also relieve the pain, but in two instances certainly set back ultimate recovery.

From so small a series of cases it would be idle to draw general conclusions. My account is indeed incomplete, as the most severe cases have not been followed to an end. I hope, however, that I may have made clear the type of case which may be expected to return to duty in a short period and to have indicated methods of treatment which are of some value.

No 2 St ti nary Hospital, Boulogne, Feb. 8th, 1915.

ON THE TREATMENT OF ACUTE EMPHYSEMATOUS GANGRENE DURING THE PRESENT WAR:

EXPERIENCES IN A CLEARING HOSPITAL.

By J. B. HAYCRAFT, M.B. EDIN.,
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I THINK that it may be worth while briefly recording the experiences gained during the first six months of this war in a clearing hospital.

Emphysematous gangrene is described in surgical textbooks, and its bacteriology and treatment are fairly definitely laid down, and since the commencement of the war several articles have been written on the subject, both from the base hospitals and England. However, I am sure that the experience gained by those surgeons differs very materially from that of those who have to treat these cases close to the front, for often the conditions under which we have to work are of necessity not of the best, and also we see those cases which develop within a very short time of being wounded, and are, I am certain, more virulent than those cases of later onset which are seen farther down the line. Any one who has seen a number of these cases must be very forcibly struck by the terrible nature of the disease we have to cope with.

We know that the disease is caused by one or more anaerobic organisms of great virulence which thrive under certain conditions—e.g., absence of oxygen, the presence of aerobic organisms, and dead and sloughing tissues. Now, as Sir Anthony Bowlby and Dr. J. S. Rowlands have shown,¹ these organisms are present in a highly virulent state on the mud-stained clothing of soldiers who have been lying in trenches. Consequently it seems that in the prophylaxis of the disease it is rational to suppose that every wound, however slight, has been exposed to infection. The majority of these comparatively slight wounds progress quite well without showing any clinical signs of infection, but there is a small percentage which become infected, and if these are not very rapidly and energetically treated they spread with great speed and may lead to the loss of a limb or even life.

Classification.

It seems advisable to regard the disease as commencing as a localised infection which spreads very rapidly up and down the limb until a massive gangrene is produced, except in those cases of gross injury where the whole limb becomes gangrenous at once. As the mode of spread depends largely on the type of wound it is convenient to group the cases under these headings:—

Simple open wound, with sloughing and dead tissue at its base and discharging a dirty brown, foul-smelling fluid, with perhaps some bubbles of gas. There is generally some oedema round about and a brownish-yellow discolouration of the skin.

Simple closed wound, either produced by a rifle or shrapnel bullet. Entrance and exit wound sealed up. There is a good deal of swelling and the limb feels hot and tense, and is very tender and painful. On percussion a resonant note may be elicited over certain areas, or on palpation subcutaneous emphysema may be felt. On opening the wound foul-smelling fluid and gas escape.

Simple wound, vascular trauma.—The limb below the wound is at first livid and cold; there is

¹ THE LANCET, Nov. 28th, 1914, p. 1265.

generally some swelling, and the parts close to the wound are very tense. The circulation is abolished, but sensation is not as a rule lost. The whole limb soon becomes much more swollen, of a deep blue colour, changing to green or black; blebs form on the skin, and subcutaneous emphysema becomes marked and extends well above the gangrenous area, while the lower part of the limb becomes tense and resonant like a drum. The general condition of the patient is usually remarkably good for a time, and he does not show marked signs of septic absorption.

Lacerated wound.—Large wound of the soft parts, produced generally by a fragment of shell; there is generally a considerable quantity of muscle exposed and torn, and a good deal of dead and sloughing tissue turning black. There is foul discharge and gas spreading up the connective tissue planes of the limb and massive gangrene of a moist type rapidly ensues.

Severe wound.—Complicated by fracture, generally highly comminuted, of one of the long bones. If there is vascular trauma in addition there is added effusion of blood under great tension, which forms a large decomposing blood-clot or else the entire circulation may be suspended by thrombosis or pressure of a fragment of bone. If gangrene ensues in this variety it is usually extremely rapid, the whole limb becoming rapidly involved often in under 24 hours, with much formation of gas and a great deal of œdema.

Again, clinically there are, I think, various types of the disease depending to some extent on the nature of the wound, but there is a very considerable difference in the appearance of the tissues. The smell produced in different cases appreciably varies and also the amount of septic absorption, so that it would, I think, be very interesting to know if there were different organisms or a different combination of organisms present in the various kinds of cases. Clinically I would divide them into:—

Dry gassy type.—This form occurs when there is vascular trauma, either a solution of continuity of the vessel or more frequently thrombosis or interference in the circulation from outside pressure, such as a fragment of bone or the pressure of tight bandages or ill-fitting splints.

The limb at first becomes cold and livid in colour, is slightly swollen, and the patient complains of numbness and tingling sensations, though cutaneous sensation is not as a rule abolished. The distal pulse is obliterated or very feeble. Very rapidly the limb becomes more swollen, the colour changes to a deep blue, and finally a greenish black. The limb becomes tense and resonant like a drum, and subcutaneous crackling can be felt which extends high above the affected area; blebs form on the skin and discharge a foul-smelling brownish-coloured fluid.

The spread is extremely rapid, but the patient does not exhibit any marked signs of septic absorption until later. On section of the limb œdema is not a prominent feature though present to a certain extent in the subcutaneous tissues, and the muscles are a dark red colour, and except for a certain amount of hæmorrhage appear fairly healthy. The odour is quite distinct from the moist type.

Moist gassy type.—In this variety there is much more swelling due to œdema chiefly affecting the subcutaneous tissues, but also the muscles, which are swollen and rather pale in colour. There is considerable gas formation, both subcutaneous and

in the intermuscular connective tissue. The skin is not so discoloured as in the last variety, but is of a brownish colour, fading off at the spreading margin which appears somewhat raised and with darker patches here and there. On section a large quantity of foul-smelling fluid mixed with bubbles of gas escapes both from the subcutaneous tissues and from under the deep fascial planes. There is more marked evidence of septic absorption.

Digestive type.—Here the muscles are particularly affected; they become soft and friable and in places almost liquefied, with here and there pieces which are completely black and dead. It does not appear to spread so rapidly as the last two varieties, but leads to a great deal of septic absorption.

Septicæmic type.—This usually occurs in a severe wound. There is local evidence of infection, but as a rule there is no spread. Septic absorption is very marked from the beginning, the most prominent features being a sallow earthy complexion with a slight icteric tinge, persistent vomiting, and a soft rapid pulse, which very soon becomes imperceptible at the wrist, death often taking place within from 24 to 48 hours.

Prophylactic Treatment.

If one adopts the view that every wound has been subjected to infection, then the chances of successful prophylaxis depend on the following conditions:—

1. The sooner cases can be brought to clearing hospitals or other stations where thorough cleansing of wounds can be properly carried out, if necessary under an anæsthetic, the less risk will there be of infection taking a serious hold, and the more likelihood will there be of rendering the wounds as aseptic as possible.

2. Every wound, and this applies more particularly to wounds of the limbs, however slight, ought to be "dressed" every 12 hours at longest by a *medical officer* from the time of its infliction until the patient arrives at a base or other general hospital, and by dressing no mere inspection will suffice, but the whole limb must be thoroughly palpated and percussed in order to detect small areas of resonance or crepitation denoting gas formation. This particularly applies to those cases where there is only an entrance wound, as often such an area may be discovered at some considerable distance from the wound.

By systematically examining every case, however comfortable the patient may be, and however clean his bandages may appear, many cases will be discovered, and by immediate treatment can as a rule be prevented from spreading. To the surgeon at home this may seem an unnecessary point to raise where, of course, all wounds are dressed as frequently as necessary, but here, in times of emergency, when a very large number of wounded may suddenly arrive, it is no light task to carry it out properly, and one is often tempted to leave cases without dressing them which on the surface appear to be all right. However, I know by experience that the extra trouble involved is well repaid when one discovers these cases and is able to prevent further spread.

3. All bandages and splints must be very loosely applied; gauze should never be wound round a limb but laid over the wound in lengths. It is remarkable how quickly swelling may render them tight and further obstruct the circulation, a factor which greatly aids in the development of gangrene.

As regards the treatment of the wounds and the relative merits of the various antiseptics to be

used, I would like to say that, firstly, I do not believe that however powerful an antiseptic is used the wounds can be entirely freed from these anaerobic organisms, and this applies more particularly to the severer type of injury, such as compound fractures. I have formed this opinion from a series of cases which have been treated at this hospital by irrigation with carbolic acid 1 in 20 and finally painting over the wound with pure acid. A number of these cases were compound fractures of the humerus and femur, and they were most carefully "disinfected" in the above manner within 24 hours of infliction. They presented no clinical signs of infection, and unfortunately we have no means of bacteriological investigation. These cases were sent to a base hospital and were all labelled and treated with carbolic acid. I have since heard from Sir Anthony Bowlby that though in no case was a limb lost they all yielded cultures of anaerobic organisms. On the other hand, some of the cases in this series were obviously infected before being subjected to cleansing with carbolic. These cases did not do so well, and the infection did not seem to be checked, whereas when they were later treated with hydrogen peroxide they began to improve almost immediately. I think this is explainable, for the carbolic acid does not kill the organisms except perhaps on the surface, and here a slough is formed which, so to speak, seals up the wound and so produces a favourable site for their later growth. Therefore I would urge that these wounds be thoroughly opened up and cleaned out as soon as possible—those that are not obviously infected with carbolic acid or some other strong antiseptic, those that are with hydrogen peroxide.

Curative Treatment.

Adopting the previous classification the treatment of any given case will vary with the type and extent of the disease together with a consideration of the patient's general condition. I see in an article by Colonel C. B. Lawson and Lieutenant H. Beckwith Whitehouse in the *R.A.M.C. Journal* that they put great faith in the subcutaneous injection of hydrogen peroxide, and they claim that since this method has been introduced they have never had occasion to amputate a limb. That claim may be perfectly true for the cases which they have dealt with in a base hospital, but I maintain that there are cases which we get, often within 24 hours of being wounded, in which the injury to bone and soft parts is so severe, and the gangrene has spread so rapidly and to such an extent, that there can be no question of any other method of treatment than immediate amputation in order to save the life of the patient. Also in those cases where injury to main vessels dominates the picture and the limb below is cold, dead, and stinking, I can conceive of no conservative measures that will avail.

In my experience the spread of infection is not limited to the subcutaneous tissues even in the slighter wounds. One not infrequently sees gas oozing out from between muscles and also from the very depths of a wound, and I have seen most plainly the fascial sheath of a muscle raised up by small blebs of gas underneath it. How, then, is the subcutaneous injection of peroxide of hydrogen going to influence this? The treatment I have adopted is as follows, and I put it under three headings without being arbitrary, as each case must be judged on its own merits.

1. *Localised infection.*—The wound should be freely opened up with counter incisions for drainage

if necessary, all dead and sloughing tissues removed, and the cavity syringed freely with hydrogen peroxide, continuous immersion being practised when feasible.

2. *General infection.*—Those cases where there is no gross injury to bone or vessels, and where the general condition is good, should be treated by multiple and very free incisions opening up and communicating all the intermuscular planes; the openings should be kept open with drainage-tubes and frequently irrigated with hydrogen peroxide. Dressings should not be bulky and should be frequently changed. In these cases the subcutaneous injection of hydrogen peroxide in addition might be a help. If the condition spreads much or if signs of septic absorption appear then amputation ought to be performed at once.

3. *General infection.*—Where there is gross injury to vessels or bone then amputation should be immediately performed, except where continuous immersion is possible, particularly in the forearm.

Operation.

We have found that the use of champagne and rectal salines administered beforehand is of great value, especially in very bad cases whose general condition is bad. I have not seen a patient yet who with their aid was too bad to stand the operation, except the two in which the anatomical spread of the disease precluded it.

The operation should be performed as rapidly as possible, and the flaps, which should consist only of skin and subcutaneous tissue, should be longer than usual, the muscles and periosteum being detached up from the bone for some distance, so that in the event of sloughing of parts of the flaps secondary suture may be performed at a later date, doing away with the necessity of a secondary amputation. Where possible the longer flap should be made away from the inner side of the limb as the spread of infection is usually more marked and reaches a higher level along the course of the great veins, more particularly in the thigh. The presence of subcutaneous emphysema at the level of amputation does not seem to matter very much. This is very important, as otherwise in some cases one might have to perform disarticulation at the hip or shoulder which would entail much greater risk. In one case in which amputation was performed through dry emphysematous subcutaneous tissues I was able to have cultures taken by Mr. Rowlands, and they proved to be sterile. The whole stump should be well swabbed over with hydrogen peroxide and the flaps loosely stitched together, pieces of gauze soaked in hydrogen peroxide being placed between them and if necessary drainage-tubes introduced.

After-Treatment.

Apart from emphasising the value of champagne and salines, either intravenous with pituitary extract if urgent or per rectum, there is nothing to add. Dressings should be frequent and soaked in hydrogen peroxide and fomentations should be avoided.

If the flaps show signs of sloughing the stitches should be removed at once, the whole surface of the stump exposed and thoroughly irrigated with hydrogen peroxide at frequent intervals. This usually arrests further spread.

Prognosis.

Those cases which are slight and treated early and also those cases which can be treated by continuous immersions do extremely well. Of the more

advanced cases, in those without bone or vascular lesions a certain number can be saved by conservative measures, probably about 50 per cent. In those cases of the "dry gassy type" the prognosis after amputation in my experience has been very good both as regards the life of the patient and recurrence in the stump. It is in those cases of the "moist type," whether accompanied by severe bone lesion or not, that the prognosis is worst; the condition often recurs after high amputation, and though it may be eventually, though not always, checked by free opening up of the tissues the patient often reaches the top of the hill only to fall back again.

The immediate prognosis after amputation, even high up, seems to be very good, the patients stand the operation well and suffer very little from shock; indeed, one of the most striking as well as pathetic features of these cases is the remarkable fortitude which these poor fellows display. You will see them chatting and smoking cigarettes quite cheerfully less than an hour after having a leg or an arm amputated, and those cases which are on the point of death retain their mental activity almost right up to the end.

Summary of Cases.

I append the following list of cases which have come under my care in this hospital. They do not include the slighter cases nor those which have been treated by immersion, as I have, unfortunately, no record of them. We are under the disadvantage of being unable to follow up the cases to their termination, but we are able to keep them until infection has so far subsided as to permit of their safe removal, generally in from five to seven days after operation. Where recurrence has taken place it is usually from 24 to 48 hours after operation. In a few instances we have, where necessary, been able to keep the cases for a much longer period. I also fully recognise that up to the present the number of cases is too small to draw any conclusions which may not have to be modified in the future. The total number of cases is 27.

	No. of cases.	Cured.	Died.	Mortality per cent.
Treated by amputation { Arm 5 ... 5 ... 0 ...	5	5	0	23.81
(total 21) { Leg 16 ... 11 ... 5 ... }	16	11	5	
Treated by incision and drainage (total 4)	4	4	0	Nil.
No treatment (total 2)	2	0	2	100
Total	27	20	7	26.59

Of the cases treated by amputation which died, one case died three weeks later from secondary hæmorrhage from the external iliac artery in the original wound in the groin. The anaerobic infection had quite subsided. One case had an amputation performed through the lower third of the left thigh for a severe double compound fracture of the tibia and fibula, which showed signs of commencing infection. The stump became slightly infected but was doing well, when the other leg, which was covered with bomb wounds, including a perforating wound of the knee-joint, became badly infected. It was treated by multiple incisions and drainage, and the gangrene was of the digestive type. Nearly the whole of the anterior tibial muscles sloughed away, but the condition seemed to have ceased to spread. He showed, however, marked signs of septic absorption and suddenly collapsed and died. His age was 41 years. One case had both legs amputated, and recurrence ensued to a considerable extent in both stumps but was checked. He collapsed and died on the fourth day after the second

amputation. He was 40 years of age. Two cases died from recurrence, which could not be checked at all by incision and drainage of the stump. One of these was treated with lactic acid, which I have not had an opportunity of trying in other cases. One case which eventually recovered had an amputation performed below the knee too close to the gangrenous area. Recurrence rapidly ensued in the stump, and re-amputation was performed in the middle of the thigh. Recurrence again took place, but subsided on opening up the flaps and irrigating with hydrogen peroxide.

The two cases in which no treatment was attempted were: 1. A huge shell wound of the back of the thigh, with moist gangrene spreading up the buttock and abdominal wall as far as the umbilicus. His general condition was so bad that nothing could be attempted, and he died two hours after admission to hospital. 2. Gangrene of the left arm and left leg due to large shell wounds. He had been lost in a wood and left in the open for three days. He was moribund on admission and died three hours later.

Conclusions.

I think from the nature of the disease that most hope is to be expected from prophylactic rather than curative treatment. Unfortunately, it is impossible, for military reasons, to "get at" these wounds within an hour or two of their reception, but much may be done by vigorous treatment at the earliest possible moment, followed by a careful watch on each case.

Strong antiseptics should be used in wounds unless obviously infected, when hydrogen peroxide will prove most beneficial.

Conservative methods should be tried as much as possible, more especially where baths can be employed; if, however, they are not possible, as in bad infected compound fractures of the thigh, then amputation should be resorted to without delay.

I would like to take this opportunity of thanking Colonel Sir Anthony Bowlby for much kindly help and advice, and also our Commanding Officer, Major Symons, D.S.O., for the cordial assistance he has always rendered, enabling me to carry out the treatment suggested in these notes.

INCLUSION DERMoids OF THE PHARYNX.

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AND

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THE occurrence of these tumours is very rare, but the clinical symptoms are of considerable interest on account of their peculiar characters and the tender age at which they usually occur. We have chosen for our case the name given first by Dr. W. Hale White,¹ it appealing to us as the most satisfactory.

The points of attachment of the recorded cases of these tumours—the pharyngeal wall in the region of the tonsillar pillars, the soft palate or the roof of the pharynx above the soft palate—coupled with their histological structure indicate clearly a relationship to the embryological activities which are manifested in this area. The infolding epiblast of the stomodæum fuses here with the anterior end of the foregut, and, as at all similar situations

¹ Hale White: Transactions of the Pathological Society of London 1881, p. 201.

throughout the body, we should expect malformations to occur now and then. Two other developmental features of the pharynx must also be borne in mind—namely, the development of the anterior lobe of the pituitary body by an epiblastic ingrowth from the roof of the pharynx, the remains of which persist normally in the pouch of Rathke, and secondly, the formation and closure of the branchial clefts. The symptoms produced in the following case may be taken as very characteristic of the class.

A female infant, aged 5 months, was brought to the hospital by her mother because for five weeks the mother had noticed some difficulty in swallowing milk and occasional attacks of coughing and dyspnoea. She had been curious enough to look into the child's mouth, and declared that she had seen a lump at the back of the throat which appeared at irregular times, and was then swallowed by the baby. The child appeared to be in perfect health, and on looking into the throat everything seemed natural, but on pushing the tongue-depressor well back and making the child "gag" a rounded, pinkish-white tumour suddenly appeared between the tongue and soft palate. It was evidently polypoid, and moved with such

rapidity that at one time it seemed to drop from the roof of the pharynx; at another to fly up from the depths of the throat. The swallowing efforts described by the mother were entirely accurate. Under anaesthesia the tumour was at first invisible, and was then found to be hidden by the soft palate, lying behind it in the nasopharynx. It was seized with the forceps and drawn forward, and was found to be attached to the left lateral pharyngeal wall between the anterior and

posterior pillars of the tonsils by a narrow pedicle. A stout catgut ligature was tied round the base and the stalk snapped off with scissors. There was no bleeding, and the base of attachment appeared to contain no blood-vessels of any size. Recovery was speedy and uneventful.

The specimen measured $1\frac{1}{2}$ inches in length, and was half an inch thick at its broadest part, and a quarter of an inch at its narrowest. The colour was a pale pinkish-white, and to the feel it was soft and smooth; it was covered sparsely with short, soft hair. On section with a knife it was rather tough, and at its centre there was a small cavity in which lying loosely was a small glistening, pearly-white plate of cartilage. Microscopy showed an external covering of thin skin with normal layers of compound epithelium. Under this was the subcutaneous stratum showing hair follicles and sebaceous glands. Deeper still was fibrous and fatty tissue, and in the centre cartilage. The accompanying illustration gives a clear idea of the appearance of a section under low magnification.

The diagnosis of such a case as this has only one difficulty—the possibility of overlooking the tumour in a superficial examination of the throat. If we are biased by an inclination to undervalue the statements of the mother, and owing to the rarity of the condition not aware of its existence, such an event would be possible, but otherwise there is no probability of error.

Eves,² who has collected 12 of these cases, recently published one very similar to the present case in a male child aged 14 months. This boy periodically vomited up the tumour, which then protruded from the mouth, and after it had been chewed for a while was again swallowed. As in our case, it was invisible until retching movements dislodged it from its usual position in the oesophagus. This tumour was attached by a long pedicle to the right side of the posterior pharyngeal wall behind the upper end of the posterior tonsillar pillar. Its structure was identical with ours except for the absence of cartilage. Removal was equally easy and bloodless. Hale White's case was a child 3 years old. The tumour was 2 inches long, "brighter red than the surrounding mucous membrane," and similar in structure to ours. It was apparently attached by a broad base to the soft palate behind the uvula. Aberham³ records a very remarkable case in which symptoms only arose just prior to removal of the tumour from a woman aged 22 years. The origin

in this case was from the region of the Eustachian tube. The surface was covered by well-formed hairs, and in the substance there was cartilage. Kidd's⁴ case was noteworthy on account of the complexity of the structure of the tumour. Measuring 8 by 6 inches, and springing from the palate, it protruded from the mouth of a newly born child, and consisted of skin,



A section across the tumour under low magnification. There are seen: (1) An outer covering of true skin with hair follicles and sebaceous glands; (2) retiform tissue; (3) a bar of cartilage lying obliquely to the right of the middle line; (4) a central canal probably due to the falling out of tissue during preparation.

subcutaneous tissue, with rudiments of bone, cartilage, and intestine. Arnold⁵ has described in an elaborate paper a number of cases in which similar mixed tumours were found attached to the pharyngeal region in still-born foetuses.

It appears to us that Kidd's case is the only recorded instance in which the tumour contained structures representative of all three layers of the embryo, and thus meriting the title of "teratoma," which has been given to these growths by some writers. It is for this reason we incline to Hale White's original explanation. Hale White considered that the varying nature and attachment of these tumours pointed to elements gone astray in the fusion of the foregut with the pharynx, and compared them to the four tufts of hair which are normal in such rodents as the rabbit.

² Eves: The Laryngoscope, September, 1914, p. 798.

³ Aberham: Journal of Anatomy, vol. xv., 1880.

⁴ Kidd: Dublin Hospital Gazette, 1856, p. 82.

⁵ Arnold: Virchow's Archiv, vol. iii., p. 176.

UNIVERSITY OF LONDON.—At a recent meeting of the Faculty of Medicine, Dr. Herbert Lightfoot Eason and Sir Wilmot P. Herringham were appointed representatives of the Faculty on the Senate for the period 1915-19.

ON BACILLUS PROTEUS INFECTION,

MORE ESPECIALLY IN RELATION TO A CASE OF
PROTEUS SEPTICÆMIA ASSOCIATED WITH
FEMORAL THROMBOSIS, PULMONARY
EMBOLISM, AND RECOVERY.

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IN this communication we wish to record a case of considerable interest both clinically and bacteriologically, and then briefly to refer to other infections caused by proteus bacteria.

The Clinical History.

The patient, a male aged 60, suffered from complete retention from an enlarged prostate. The urine was clear and acid. A three-lobed tumour surrounded by some circumferential fibres was removed by the suprapubic route. A distinct shelf of mucous membrane was left between the bladder and the cavity from which the obstructing adenomata were removed. The course was uneventful, and the general condition of the patient was excellent, although at the end of five weeks no urine was passed by the natural route. The suprapubic sinus was enlarged, a finger introduced into the bladder, and a steel sound was passed along the urethra. It was found that the mucous membrane had healed completely over the entrance of the urethra into the bladder. The sound was pushed through and the edges of the obstructing membrane were divided radially with scissors. The patient became gravely ill, with a sustained high temperature, and very rapidly showed considerable loss of flesh. The high degree of pyrexia was associated with definite rigors. Thirteen days from the onset of this acute illness thrombosis of the deep veins of the right leg was detected, together with great œdema of the surrounding tissues. On several occasions it seemed as if supuration had supervened, owing to several very painful areas in the boggy tissue of the enormously swollen thigh. A firm, tender cord along the course of the right femoral vein could be detected for several inches. Three weeks from the onset of the thrombosis the patient developed a severe and sudden illness affecting the cardio-respiratory system, probably due to a pulmonary embolism. It is doubtful if a patient was ever in a graver condition, but once the limit of the acute illness was reached he began to improve distinctly, and the progress towards recovery was as rapid as the downward course had been. The pyrexia decreased in severity and the swelling in the leg began to diminish, so that in three and a half months from the onset he was able to return to his house in the country in a comparatively good state of health and without any visible abnormality in the legs. The act of micturition was completed in a normal manner in every respect. The pyrexia during the height of the illness varied between 100° and 105° F., while the pulse was generally rapid and often very irregular. He never had a rash and no physical sign beyond those already referred to except an attack of tonsillitis, from which we were unable to cultivate the bacillus proteus.

Bacteriological Examination.

Blood.—A good supply of blood was obtained from a vein and various media were inoculated, including a 2 per cent. solution of bile salts in distilled water. An abundant growth of a bacillus was obtained in this medium within 24 hours, while at the end of 48 hours the other media gave a similar result. This organism, when fully investigated, was found to be identical with the bacillus cultivated from the urine.

Urine.—There was a deposit of pus, and bacilli were numerous. A sample of the urine plated direct on bile-salt lactose neutral-red agar gave a pure culture of the bacillus about to be described in detail.

Cultural Characteristics.

Neutral-red bile-salt lactose agar.—A growth of the organism on this medium changed the colour to a yellowish brown and the individual colonies were of a similar appearance.

Gelatine.—Rapid liquefaction occurred.

Litmus milk.—This medium was acidified, then decolourised, and the clot which formed was rapidly peptonised.

Neutral red broth.—Marked green fluorescence was produced and the medium was altered to a canary-yellow colour.

Peptone water.—No indol formation occurred at the end of ten days.

Blood serum.—Liquefied within a few days at 37° C.

Litmus dextrose.—Acidified, decolourised, and abundant formation of gas.

Litmus cane sugar.—Acidified, decolourised, and slight production of gas.

Dulcitate and maltose were acidified and decolourised, but no gas formation occurred, while sorbite, lactose, and mannite were unaffected.

Agglutination Reaction.

A 24-hour culture of the bacillus was obtained on agar, emulsified in saline, and tested with stock antiproteus serum. The serum was prepared by immunising rabbits with filtered and boiled aggressive exudates obtained from proteus infections, as detailed in the Croonian lectures of 1912.¹ Cultures of this bacillus isolated from the urine and blood and tested with this serum in dilutions of 1 in 10, 1 in 50, 1 in 100, and 1 in 200 gave a strong agglutination reaction both by the microscopical method and the sedimentation test. Control normal serum exerted no clumping action when treated with this bacillus in similar dilutions, while atypical members of the proteus group agglutinated to a limited degree in the presence of this serum.

Pathogenicity.

This bacillus was found to be pathogenic in guinea-pigs when injected intraperitoneally. The animals died within 24 hours from acute diffuse peritonitis. The abdominal viscera were soft and friable and mostly covered with an inflammatory exudate. In each instance a pure culture was obtained from the peritoneal exudate of a bacillus with similar cultural characters.

As regards the pathogenicity of this bacillus for guinea-pigs the results were not constant, as some animals recovered after a severe illness which cannot be regarded as an exception with bacteria of

¹ Dudgeon, L. S.: The Pathology of Immunity—more especially with regard to the Problem of Aggressins, the Croonian lectures, THE LANCET, June 15th, 22nd, and 29th, and July 6th, 1912.

this group. When injected subcutaneously a lesion of minor importance may be excited, unless a heavy dose has been injected, when a fatal result may ensue.

Action of the Proteus Bacillus on Urine.

Samples of normal human urine were sterilised by exposure to a temperature of 60°C. for four hours. Experiments were made by inoculating tubes of the sterile urine with this strain of proteus and incubating one batch at 37°C. with control tubes uninoculated, and contrasting the results with similar tubes of sterile urine also inoculated with proteus, but left at room temperature. The only tubes which were altered at the end of 24 hours were those which had been inoculated and incubated at 37°C. These were very turbid, showed a heavy deposit of triple phosphates and carbonates, and omitted a foul ammoniacal odour. It was found at the end of five days that the inoculated tubes of urine which had been left at room temperature were sterile, but when transferred to the warm incubator the urine was decomposed in the manner indicated above. These results occurred both aerobically and anaerobically.

Horton Smith² published some observations made by him on proteus infection of sterilised urine, and showed that the strain he was investigating decomposed the urine, setting free ammonia and precipitating triple phosphates.

The absence of decomposition of the urine at room temperature is of interest, but the rapid activity of the proteus bacillus when such samples of urine are transferred to a temperature of 37°C. is emphasised, and such results agree with certain experiments given by McWeeney in a paper which will be referred to later. Here he states that slices of potatoes inoculated with proteus bacilli and kept at 10–12°C. were found not to be toxic.

Treatment.

When the patient was first seen with a view to special treatment to be directed against the bacterial infection he was so desperately ill that urgent remedies had to be adopted before complete investigation of the case could be completed. As the infection had originated in the urinary tract and a bacillus had been cultivated from the blood stream it was supposed that we were dealing with a case of septicæmia due to the bacillus coli, a supposition which would be correct in the vast majority of similar cases. Anticoli serum was administered (50 c.c.), followed in 12 hours with 25 c.c., but without any material effect on the clinical condition or on the pyrexia. It was discovered by this time that the infecting organism belonged to the proteus group; an injection of proteus vaccine was administered, and as soon as possible the patient received the autogenous vaccine in gradually increasing doses of 15 to 30 million, while as the general condition improved the dose was increased until he finally received 500 million bacilli at each injection.

The inoculations from the first produced a distinct beneficial effect, although some rise of temperature occurred, while later large numbers of bacilli were administered without causing more than a slight degree of pyrexia. The improvement induced in the tissues affected by the thrombosed veins was remarkable, more especially when the acute stage of the infective process had diminished

in intensity. In our opinion such rapid recovery from so grave an infection could have been induced only by means of a specific bacterial product.

Acute and Chronic Infections Caused by Proteus Bacteria.

For some years we have investigated various infections due to bacilli of this group,³ although the case under discussion is unique in our experience. The commonest infections caused by proteus bacilli undoubtedly are pyuria due to cystitis, non-empysematous gangrene of infected wounds, infected sinuses, and chronic localised infective processes of various kinds. Two of the most widespread suppurative inflammations of the skin which we have ever seen were due to the proteus bacillus. In both instances these cases had been diagnosed clinically and treated as staphylococcal infections, but all to no purpose. Infection of wounds by the proteus group may be of a simple or suppurative character, and a non-empysematous but spreading gangrene may be induced by this organism as already referred to. One of us (L. S. D.) met with a case of this kind in which the whole abdominal wound became gangrenous from an infection originating in an undiagnosed proteus pyuria. Undoubtedly the commonest infections caused by members of this group are confined to the urinary tract. It is the proteus group which produce the peculiarly offensive odour of the urine so well known in some forms of cystitis and so fully represented in the badly flushed urinals by no means uncommonly met with even at the present day. The saprophytic life of the proteus group is so fully recognised that the pathogenicity may be and often is overlooked. In fact, it is unintelligible to those who see proteus infections so often that textbooks on bacteriology should give so little information on the subject.

Proteus infections as a rule are mild, occasionally severe, but the severity of the infection met with in the case under discussion is unique in our experience. Hicks⁴ recorded a fatal case of septicæmia from which he recovered a proteus bacillus from the blood during life and from the tissue at the necropsy. McWeeney,⁵ in an interesting paper on meat poisoning already referred to, classifies such infections into three groups, one of which he calls "the group of putrefactive aerobes (proteus)." He, however, lays too much stress on the saprophytic existence of this group of bacteria as shown by the following sentence: "We have had to deal with a group of cases referred with more or less probability to the action of organisms that lead a saprophytic existence in dead matter, and do not, as a rule, produce specific infective disease in living men or animals." In this paper reference is made to infection of meat food with proteus bacilli and to a most interesting outbreak of food poisoning recorded by Dieudonné in which 180 Prussian soldiers were infected by a potato salad found to be saturated with this organism.

A case of meningitis due to a proteus bacillus was recorded by Ross,⁶ and in this instance the organism in question was cultivated from the cerebro-spinal fluid during life. The proteus bacillus

² Smith, P. Horton: On Bacillus Proteus Urinae: A New Variety of the Proteus Group, discovered in the Urine of a Patient Suffering from Cystitis, Journal of Pathology and Bacteriology, 1897, vol. iv.

³ The cultural characters of the organism described here are regarded by us as typical, but large numbers of strains atypical culturally and by agglutination tests are commonly met with.

⁴ Hicks, J. A. B.: A Bacillus of an Unusual Kind Isolated from a Case of Septicæmia, THE LANCET, May 31st, 1913, p. 1526.

⁵ McWeeney, E. T.: Meat Poisoning, its Nature, Causation, and Prevention, Journal of Meat and Milk Hygiene, vol. i.

⁶ Ross, E. Athole: A Case of Meningitis, THE LANCET, Nov. 9th, 1912, p. 1292.

isolated by Ross in this case was not the typical organism according to the cultural characters given in his paper, but it had many points in common with bacteria of this family. It has been claimed that infantile diarrhoea is due to bacilli of this group, and certain observers consider that infectious jaundice is excited by a special proteus bacillus. It should be fully recognised by clinicians that proteus bacteria are capable of exciting various infections in the human subject, mostly chronic or mild in character, but sometimes severe. The fact that this organism so often exists in the human body without exciting a severe illness has led to the belief that it is incapable of exerting a severe pathogenic effect.

A SIMPLE METHOD OF TREATING GUNSHOT WOUNDS OF THE HUMERUS.

(SUPPURATING COMPOUND COMMINUTED FRACTURE.)

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THIS method, which consists of slinging the wrist to the neck, has been in use here since the beginning of the war with complete success. On arrival at the hospital the patient is stripped to the waist, seated on a chair, and all dressings and splints removed. He is then instructed to take hold of the hand of the injured arm with his other hand, and slowly to bend the elbow, raising the hand as near to his neck as possible, with the elbow hanging down. The hand is then fixed there in the sling described by H. O. Thomas, of Liverpool, as the "gauge halter," but which may be conveniently called the "Thomas sling."

To apply this sling a 4-inch flannel bandage 3 yards long is knotted fairly closely round the neck, with the two ends hanging down equally. Where these two ends come opposite the upper border of the wrist, the elbow being flexed in the manner described, another knot is made, and one end passed in front of the wrist and one behind it. The wrist is now pushed snugly up against this knot, and the end which passed in front is turned up behind, and the end which passed down behind is turned up in front, and the two tied above the wrist again in a third knot. (Fig. 1.) Some wool is introduced between the bandage and the wrist to prevent chafing.

Antiseptic dressings are then applied to the wound and are kept in position around the arm with a triangular bandage. The patient is put to bed and kept propped up with pillows in a sitting position so as to allow the elbow to hang down. As soon as he feels fit enough he is encouraged to get up and sit about the ward, and even walk about in the garden, the elbow hanging down the whole while.

Though such injuries often appear hopelessly septic, with pus pouring out of the wounds of entry and exit, and with considerable tumefaction, a few days of this treatment produce a wonderful change for the better in them, and beyond enlarging the wounds and inserting a tube if the drainage is not sufficient, no further treatment besides frequently changing the dressings is required. On no account must the comminuted portions of bone be removed at this stage; most of them will heal in and help in

reforming the shaft. Any fragments which necrose can be removed months later without risk then of taking away useful bone. The patient's wrist is kept in this sling night and day for five or six weeks until bony union has taken place. When the patient can voluntarily raise his hand in the sling and touch his forehead it is safe to let him come out of it.

FIG. 1.



The Thomas sling in position.

If a radiogram is wanted during this period it is taken in the sling, the plate being placed between the body and the arm. When required, fresh dressings can be applied without ever taking the limb out. The patient simply leans over in the sitting position so as to let the elbow hang clear of his side, when the dressings can be changed without disturbing the bones in any way—wherever the wounds may be situated—the whole process occupying less than a couple of minutes.

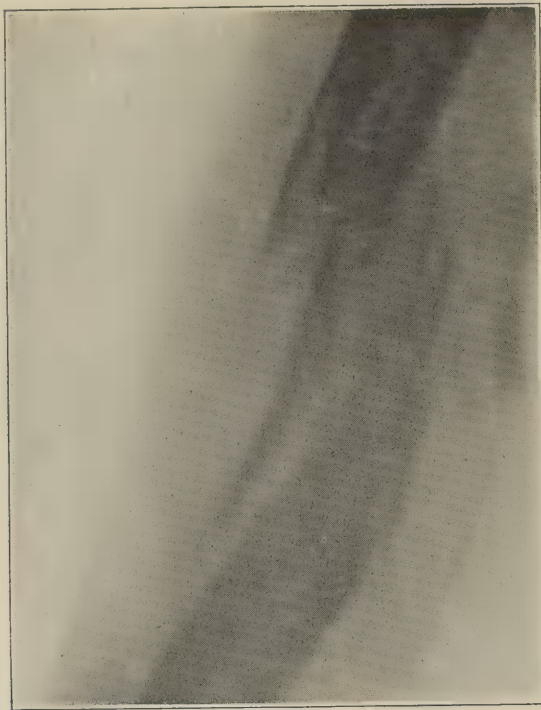
The weight of the elbow acts as a constant extending force, producing good alignment, and as there is no movement of the parts, even when the dressings are changed, the patient suffers the minimum of discomfort and is spared the pain of daily dressing which seems inseparable from other methods of treatment. By the use of this sling bony union with complete range of extension and flexion is assured. If Medical Officers with the Expeditionary Force were to adopt it, much time would be saved, much suffering avoided, and many useful limbs obtained.

The following is an illustrative case:—

Lance-Corporal, 4th Royal Fusiliers, received on Sept. 19th, 1914, on the Aisne, a shell wound of the left upper arm. Oct. 2nd: Arrived at Cambridge Hospital, Aldershot, in great pain. The arm was much swollen, pus welling out from the wounds. Thomas's sling applied the same night.

day. Sent to Auxiliary Hospital, where he remained 14 weeks, with a small sinus discharging on the outer side of the arm the whole time. Feb. 12th, 1915: Returned to Cambridge Hospital. Can voluntarily flex elbow completely, and extend to 150°; pronation and supination perfect. Radiogram (Fig. 3) shows stout bony union with good alignment. Comminuted portions of bone have all healed in, except for

FIG. 2.



Radiogram showing comminuted fracture of humerus.

FIG. 3.



Radiogram showing stout bony union with good alignment.

Oct. 3rd: A radiogram (Fig. 2) taken by Dr. Hernaman-Johnson, radiologist to the hospital, showed severe comminution, with the shaft practically obliterated for an inch. Oct. 5th: Drainage-tube inserted. Oct. 12th: Arm immensely improved; no pain whatever. Nov. 6th: Bony union; given permission to take wrist out of sling a little every

a few minute necrosed fragments lying in an abscess cavity. Feb. 14th: Necrosed fragments removed with spoon. Feb. 19th: Sinus closing, no discharge. Left again for Auxiliary Hospital.

My thanks are due to the Commanding Officer for kind permission to publish this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Clinical Cases.

A MEETING of this section was held on March 12th, Mr. CHARTERS J. SYMONDS, the President, being in the chair.

Dr. J. PORTER PARKINSON showed a case of Tumour of the Neck with Obstruction of the Superior Vena Cava. The patient, a woman aged 50, had had lumps in the neck since the age of 10; these increased about the age of 20, but diminished under the application of iodine. She married when aged 30, and had had three children and no miscarriages. At the age of 34 the neck suddenly became stiff and she had severe pains; the latter had since gone, but the stiffness had increased. Four or five years ago she noticed enlarged veins on the chest, and these had steadily increased in size. She had been getting somewhat thinner for the last eight years. On admission to hospital she was a somewhat thin woman, weighing 7st. 6lb. The head was held rigidly, somewhat bent forward, and not the slightest rotation could be produced. The muscles of the back of the neck were large and exceedingly hard, almost as if converted into bone. On each side of the neck, under the sternomastoids, was a somewhat irregular mass which moved

on palpation; and on swallowing its consistence varied from an indefinite fluctuation in some parts to a cartilaginous hardness in others. It was not adherent to the skin or surrounding parts. The isthmus of the thyroid could be felt, but was not enlarged to any great extent. The right carotid artery was displaced backwards. There was enormous dilatation of the veins of the chest and abdomen, the direction of the blood-flow being downwards. Nothing abnormal could be made out in the chest or abdomen. The urine was normal. The temperature varied between 98° and 99·4° F. Skiagrams showed no change in the vertebral column, no ossification of the muscles of the neck, and nothing abnormal in the chest. After a month's treatment of the muscles of the neck by potassium iodide ionisation some slight movements of the neck were possible, but on the whole the condition was unchanged. The Wassermann reaction was negative. The case was brought for suggestions as to diagnosis: first, as to the nature of the tumours of the neck and the condition of the muscles; and secondly, the cause of the interference with the superior vena cava. The neck tumours were, Dr. Parkinson suggested, enlargements of the lateral lobes of the thyroid of the nature of a cystic adenoma partially calcified.

Dr. F. PARKES WEBER showed a case of Non-syphilitic Arteritis Obliterans ("Thrombo-angiitis" of Leo Buerger), with Gangrene of Toes. The patient, aged 25, a Jew, had come from Russia to London nine years ago. He was delicate-looking and thin, having, as he said, lost about 28 lb. in weight during the last two years. He denied having had any venereal disease. Seven years ago he first had trouble in his left foot and a doctor removed the nail of

the big toe, which he thought was "ingrowing." Gangrene of the big toe followed, and ultimately, about 12 weeks later, the whole of his big toe had to be removed. The wound healed up and for a long time the patient had no further symptoms in his feet. In March, 1913, however, he got his feet thoroughly chilled and then warmed them in front of a fire. Thereupon, though the left foot did not suffer, the distal portion of the right foot became painful and red and afterwards purple. The pain was so severe that he could not sleep. The nail of the right great toe, which looked quite black, had to be removed, and the great toe itself became permanently contracted. After the patient had been laid up several weeks the pain gradually diminished and then disappeared, but the cyanotic colouring of the foot persisted, though varying in degree from time to time. About five weeks ago the left foot assumed the same cyanotic appearance as the right foot, but he suffered no pain in either foot, though sometimes there was a sensation of "pins and needles." For the last two years there had been a condition of "intermittent claudication" in both legs. He used to smoke about 20 cigarettes daily. He said that he had never been subject to chilblains. The distal portions of both feet were cyanotic, the right more so than the left; the colour varied from time to time, especially according to position. Thus, when the feet were raised up they became paler, and when they were allowed to hang down they became more cyanosed. Both feet felt cold. Pulsation could not be detected in either right or left dorsalis pedis artery, or in any of the arteries of the feet. There was no air pulsation in both femoral arteries at the groin. The great toe of the right foot was permanently contracted in a flexed position. There was a certain amount of "glossy" trophic disturbance in the skin of the toes of both feet and a scabby scar of a recently healed ulcer on the right heel, where intermittent pressure occurred in walking. The patient thought that his legs had wasted during the last two years, but only in proportion to the general wasting of his whole body. He had well-marked signs of valvular disease of the heart with hypertrophy of the left ventricle, probably of rheumatic origin, though there was no history of rheumatic fever. The physical signs were those of aortic reflux, and there was also a musical systolic murmur, best heard at the apex. The brachial systolic blood pressure equalled 160 mm. Hg. The blood serum gave a negative Wassermann reaction or syphilis. Dr. Weber regarded the case as one of non-phlogistic arteritis obliterans (the "thrombo-angiitis obliterans" of Leo Buerger), occurring, as it most frequently does, in a young adult male of Jewish stock from Eastern Europe. The exciting cause of the onset of the symptoms in the patient's right foot was a kind of "frost-bite," but the patient had already previously had disease in the other foot without "frost-bite" of any kind connected with it. In this association it was interesting to note that the condition of the foot after some cases of so-called "trench frost-bite" (French, *mal des tranohées*) observed amongst the soldiers in the present war resembled the state of the foot in cases like the present one. The connexion of other kinds of auma with cases like the present one might also sometimes be confusing. Thus, in a patient recently at the hospital there was a history that a cab went over his foot. The patient was a Jew, aged 37, with a very painful condition of the left foot, which kept him awake at night. The distal portion of the foot was red or purple, and there were black patches of superficial dry gangrene over the great toe and the heel. Pulsation was absent in the dorsal artery of the left foot, but was present in the dorsal artery of the right (sound) foot. The left foot had certainly been run over, but the patient had complained of pains long previously, and slight atrophy of the calf muscles of the left leg had been recorded three months before the accident, when the patient was at a health resort for treatment.

Dr. WEBER also showed a case of Sclerodactylia of Feet associated with Arteritis Obliterans and Gangrene of Toes, and a case of Acromegaly; also skiagrams of a case of the Morvan Type of Syringomyelia. With regard to the last mentioned, he said that in 1883 Morvan, a French doctor, working in Brittany, described cases of a trophic disorder of the extremities associated with the formation of painless ulcers and areas of analgesia. Though Zambaco Pasha (Constantinople) tried to prove that Morvan's cases were bad examples of attenuated leprosy (occurring in

Europe), Charcot, Marinesco, Jeanselme, and others succeeded in proving that most of them were due to syringomyelia, and Charcot termed the so-called "Morvan's disease" (or rather syndrome or symptom-complex) the "Morvan type of syringomyelia." The present case was that of a man, aged 45, who for the last 15 months had suffered from trophic disturbances in the hands characterised by the occasional formation of scabs, which gradually peeled off. There was no condition of actual "cheiromegalia," as occurred in some cases of syringomyelia, nor was the process of scab formation on the fingers associated with actual suppuration. The patient's toes were somewhat "clubbed," and the local thickenings of the skin over the toe-tips apparently corresponded to the scabs on the finger-tips. There were areas of analgesia on the forearms and legs. The ulnar nerves at the elbows felt perhaps somewhat thicker than in most persons, but there was no real evidence of anæsthetic leprosy, and the patient said he had not been out of Europe during the last 16 years. The Roentgen skiagrams of the hands and feet confirmed the view that trophic changes in these parts in cases of syringomyelia were practically confined to the soft parts, leaving the bones unaffected. There was no kyphosis or deformity of the back. There was no acromegaly-like change in the patient's face, such as had been rarely met with in cases of syringomyelia. Though the scab formation in the fingers was painless, the patient did suffer from subjective pains (some of Morvan's patients complained of "neuralgic pains"), notably what he called "sticking pains" in the fingers in cold weather. The pupils reacted to light and accommodation. The knee-jerks were somewhat exaggerated. The plantar reflexes were active and of the normal (flexor) type. The blood serum gave a negative Wassermann reaction. There was no muscular wasting.

Dr. WEBER then read a short paper on a case of Splenomegaly with the clinical picture of Banti's disease.

SECTION OF OPHTHALMOLOGY.

The Montessori System and its Use for Children with Defective Vision.—Education of Children with Defective Vision.—Exhibition of Clinical Cases.

A MEETING of this section was held on March 3rd, Mr. J. B. LAWFOORD, Vice-President, being in the chair.

Mr. LESLIE J. PATON read a paper entitled "The Montessori System and its Use for Children with Defective Vision." He said his attention was called to the value of this system of education in the case of children with defective sight by having a patient, aged 2½ years, in whom severe ophthalmia neonatorum had caused blindness in the left eye and very defective vision in its fellow. He was greatly impressed a year later by the boy's general intelligence and by the fact that he knew his letters and could count small numbers. The parents ascribed this improvement to six months' training which he had received at a Montessori school. The method was most applicable to children between 3 and 6 years of age, the most important period of sensory education. There were several of these schools in the country, but the difficulty was to find the right conductor. It was difficult to resist the temptation to interfere with the child, but the reward came in the child's intense satisfaction when he had succeeded unaided. If the child were really interested in his task no outside influence would prevent his continuance at it. Even in normal children most of the exercises were done blindfolded, so as to exercise the tactile muscular and stereognostic senses. By this system vision played but a small part in learning to write: the art was acquired almost as a by-product during the training of the tactile muscular sense. Mr. Paton described, aided by the actual models, the kind of training given, which included the discrimination of various sounds and rhythm. The method enabled children to perform by the assistance of these senses many complex acts accurately. A difficulty with English children, however, was the fact that English was perhaps the least phonetic of European languages, while the Italian was almost purely phonetic. It left the child to develop its inherent capacities, in opposition to the usual method of inculcating from outside truths in the form of dogma. The children seemed to be unconscious that they were doing more than playing at a most absorbing game, yet they were undergoing self-discipline and a social recognition of duties to others.

Mr. N. BISHOP HARMAN read a paper on the cognate subject of the Education of Children with Defective Vision. The claims of the Montessori system were compared with the scheme of myope classes which had been working in this country and America for seven years. In Italy the Montessori system had one great advantage over the current modes of education, in that it allowed for the personality of the child, and it had proved of great value for mental defectives. But the spirit of England was against anything in the nature of drill-sergeant education, personality having always been fully recognised; moreover, in its technical methods the Montessori system had nothing new to offer, and it had been claimed that a substitution of feeling for sight was a reversion to a lower order of things. If the claim were substantiated that by the Montessori system a child learned to read two years earlier than by the ordinary methods, it effectively condemned the system for children with defective vision; it placed the child too early into the unreal world of books, and there was an absence of childish questioning for information. The myope class had a natural origin, numbers of short-sighted children had to be dealt with. The scheme resolved itself into three parts: (1) Oral teaching with normal children; (2) literary work in the special class where all the work was done on blackboards; and (3) handicraft work, which had both utilitarian and "expressional" value, and to this work were attached the practice of history, arithmetic, geography, and so on. Despite the regulation forbidding work necessitating stooping and the use of rules and scales, the handicraft work had been highly developed. It was working as a full scheme in elementary schools for children aged from 7 to 14 years, and was also used, with modifications, in the teaching of children in well-known public schools with equal success.

The papers were discussed by Mr. CHARLES WRAY and Dr. G. E. SHUTTLEWORTH, and Mr. PATON and Mr. BISHOP HARMAN replied.

The following clinical cases were shown:—

Mr. A. C. HUDSON: Two cases of Couching of the Lens.

Mr. STEPHEN MAYOU: Glaucoma in a boy aged 17 years.

Mr. G. W. ROLL: (1) Bullet Wound of Orbit; and (2) Proptosis.

Mr. RAYNER BATTEN: Vascular Keratitis of Upper Third of Cornea, with Terminal Perivascular Deposits.

Mr. WRAY: Conical Cornea.

ROUEN MEDICAL SOCIETY (ROYAL ARMY MEDICAL CORPS).

Typhoid Fever

A MEETING of this society was held at No. 11 Stationary Hospital, Rouen, on Feb. 13th, Colonel B. M. SKINNER being in the chair.

The following committee was appointed to conduct the affairs of the society, the A.D.M.S., Rouen, consulting physicians and surgeons, and honorary general secretary to be *ex-officio* members of the committee: Lieutenant-Colonel C. B. Lawson, Major A. J. Hull, Major Adye-Curran, Lieutenant Struthers, and Lieutenant Harold Wiltshire. Lieutenant Beckwith Whitehouse was elected to undertake the duties of honorary secretary and treasurer.

Colonel SKINNER announced that a large consignment of medical and surgical books had been received from Messrs. W. B. Saunders Company for the use of members of the society, and these had been placed in a room at the Hotel de la Poste, kindly placed at the disposal of members by Colonel Sir Berkeley Moynihan.

Colonel Sir BERTRAND DAWSON, in opening a discussion on Typhoid Fever, said that he proposed to treat the subject under the following headings: (1) Early diagnosis; (2) atypical cases; (3) the results of inoculation; and (4) the coexistence of typhoid and paratyphoid. The most important points in the early recognition of the disease are headache, fever, a low pulse-rate, and cough. If typhoid is ripe and a patient presents himself with a temperature of 103° F., pulse 90-100, and headache cultures should be made at once and a dose of vaccine administered. In about 30 per cent. of cases epistaxis occurs as well, and must be noted in relation with the above symptoms. Mistakes are most likely to occur in relation with meningitis, influenza,

and measles. Measles is usually quite evident by the fourth day. The slowness of the pulse in relation to temperature is most striking and helpful. It is not uncommon to find fever of 102° and 103° associated with a pulse well under 100. Furthermore, the pulse-rate may frequently be regarded as of prophetic value. Thus, a pulse consistently below 100 indicates spontaneous recovery. On the other hand, a rising and high pulse-rate means a severe infection. Frequently the rate will increase to 105 or 110 long before other symptoms arise. It is advisable to chart the pulse readings as well as the temperature for reference. If the pulse line remains below the temperature all is well; if it mingles with the latter complications may be expected; if, on the other hand, the tracing wanders above the temperature line danger is foreboded. The speaker illustrated these remarks by a series of charts. As regards the diagnosis between typhoid and meningitis and influenza some difficulty may arise, owing to the fact that both diseases have a slow pulse in relation to temperature. In meningitis pain and stiffness of the neck and the initial vomiting are important diagnostic points. The banished abdominal reflex does not help much, as it is sometimes common to both diseases. Kernig's sign and absence of knee-jerks have also been noted in typhoid. Lumbar puncture may be performed in doubtful cases, but only when other diagnostic signs have failed. Influenza more frequently gives rise to mistakes in diagnosis. In both typhoid and influenza headache is present, and in both a sore throat may exist. Influenza, however, always presents physical signs by the fourth day of the disease. The most important of these is fine bronchitic signs and blocking of the lung bases. This may occur in typhoid also, but the clinical picture is totally different. The influenza patient under these conditions is restless and excitable, whereas the typhoid individual is somnolent and apathetic. Swabs may be taken from the throat, but it must be remembered that the influenza bacillus is easily missed. As regards a blood count, typhoid is undoubtedly one of the fevers that give a leucopenia; but with influenza it is not uncommon also. In discussing paratyphoid Sir Bertrand Dawson observed that paratyphoid A is hardly known in England, although of common occurrence in India. Paratyphoid B, on the other hand, occurs not infrequently and he thought that many cases are probably being missed at the present time and not reaching the base hospitals. Clinically, the disease is often indistinguishable from typhoid, exhibiting the characteristic splenic enlargement, spots, bronchitis, &c. The cases recover more quickly, however, and relapses are less frequent. He did not remember a single case in which perforation had occurred. As regards the temperature, the fever is remittent from the first and subsides about the sixteenth day. Considerable difficulty arises in the diagnosis of the slight cases. The patients are usually seen at too late a stage to get a blood culture, and the temperature only lasts for three or four days. In a series of 6 cases of slight fever recently investigated 2 proved to be paratyphoid. With regard to the question of antityphoid prophylactic inoculation, he has investigated a series of 27 cases of paratyphoid B. Of these 21 had been inoculated. He suggested that if the incidence of paratyphoid increases the prophylactic vaccine should be a mixed one and include strains of paratyphoid B. The disease is communicated probably by carriers and direct contact. Discussing the relation of prophylactic inoculation and true typhoid, Sir Bertrand Dawson noted that in recent severe cases 14 only had been previously inoculated and 47 untreated. Of 37 mild cases, 28 had received vaccine previously and 9 had not. The proportion in each is therefore about 3 to 1. No death had occurred in the inoculated cases, although there had been two narrow escapes. Referring to the Widal test, the speaker observed that it is the disadvantage of not being available during the first week. Also it is always present after inoculation, and although the dilution increases during the progress of the disease the information given is necessarily late. Furthermore, the test is eccentric. He cited various instances in support of this fact. In one case the blood was positive to typhoid, but the Widal was negative throughout. In another case the test was positive one day, negative the next, and positive again the next. In yet another patient the Widal was negative two days before death and positive in blood taken post mortem. People are apt, therefore, to put too much reliance upon the

test. From a clinician's point of view nothing comes up to a blood count. With regard to blood cultures it is curious how in some cases they are always negative. Does this mean that the bacilli are absent from the blood or present in very minute numbers or is the culture medium not correct? It is known that the B organisms are present in plenty in the spleen, and the speaker asked if it was possible to obtain the blood for culture from such an organ or perhaps the liver. Puncture of the latter organ may easily be performed between the eighth and ninth ribs, and if a medium-sized needle is employed sufficient blood withdrawn for culture purposes. Examination of the stools becomes of increasing importance owing to the failure of the Widal test due to inoculation. With regard to therapeutics, most interest centres round specific treatment. It is very difficult to maintain an open mind on this matter, and to designate between *post hoc* and *propter hoc*. On the one hand is the man who sees very little good derived from vaccines, and on the other is the man who lauds them to the skies. Whilst it is easy to estimate correctly the value of vaccines in the chronic lesions, it is difficult to judge success in the acute conditions. The only criteria upon which to base deductions are (1) statistics, and (2) clinical data. With regard to the former, it must be remembered that statistics are ever unreliable. It is important, for example, to know if a specific epidemic is severe or not. The mild cases get well whether vaccines are employed or not, as do also paratyphoids. Concerning the clinical facts the important points are: (a) Does the patient have more resistance under specific treatment? (b) Does he relapse less? To obtain these facts each observer must state his own views, and this introduces a fallacy due to the personal element. Illustrating the mistakes that may arise, the speaker referred to a case in which the temperature fell after each dose of typhoid vaccine and yet the bacteriologists report the case to be one of paratyphoid. Sir Bertrand Dawson's view with regard to vaccines was that they are valuable if used with caution. Inoculation must be commenced early and in larger doses than are usually administered. 750 million should be given rather than the usual 200 million, increasing every second day until 500 million are reached. It is preferable to employ the larger dose in the hope of overtaking the disease, and no harm will result from the larger doses. The heterogenous army vaccine should be used, although some people prefer an autogenous vaccine. The latter is open to the objection that it may not possess the same immunising power as a heterogenous preparation of proved value. Living cultures have been tried in some quarters, and it is claimed that success has followed their employment. It is, however, a dangerous question and one which requires more thorough investigation. The number of typhoid carriers, for example, may be thus increased. In the complications of typhoid fever vaccines undoubtedly do good. This is particularly the case in periostitis. With regard to diet, all kinds of views prevail from the advocates of starvation to those who advise solid food. Concerning the latter it appears almost impossible to give solids to an individual who has no appetite and whose mouth is exceedingly dry and foul. In the few cases, however, where these measures have been employed perforation has not followed. Starvation also cannot be recommended unless distinct advantages are gained hereby. The ideal diet is milk, used as a basis, and supplemented by Benger's or Mellin's food, and beef juice. Chocolate may be given with advantage, and supplies the necessary amount of carbohydrate. When the temperature is approaching normal the amount of food should be increased. On the continent treatment by baths has a very wide application. Unless it can be proved, however, that it really materially improves the symptoms, it is a method which appears to have more disadvantages than advantage. The constant moving disturbs the patient, and unless the circumstances are such that the whole bed can be immersed in the bath it is better to employ other treatment. A continuous warm bath of 100° is good in cases associated with muttering delirium, but even in the best conditions of civil practice it is difficult to arrange. As regards the employment of alcohol, in an ordinary straightforward case it is not required. With a high pulse-rate, however, and toxæmia it is valuable, and should be given. Strychnine is useful if abdominal distension is marked and the pulse not good. Pituitrin is also well worthy of trial. The speaker concluded by discussing the

symptoms and treatment of typhoid perforation. This accident should be suspected if (a) acute pain suddenly develops in the abdomen, followed by distension, rigidity, and a rising pulse; or (b) if the pulse is rising and the patient is exceedingly clear in mind. In the latter case pain may be little and distension absent. Two such cases had occurred at Wimereux. As regards treatment, if a surgeon is available it is best to operate. If, however, the site of perforation cannot be reached quickly the proper course is to leave the patient alone and administer morphia. It does not follow that all such patients die. Several instances are on record where the perforation has been closed by local adhesions.

Colonel Sir WILLIAM LEISHMAN, continuing the discussion, observed that during the six months the war had lasted only 605 cases of typhoid fever had occurred in the British troops and 25 in the Indian. In other words, about only half a battalion had been incapacitated from this cause. Of 505 of these cases 72 had been fully protected by inoculation (two doses of vaccine within two years), 113 partially protected, and 320 uninoculated. These figures proved once and for all the value of protection. It was impossible, for obvious reasons, to publish the total number of men that had been inoculated, but he could say with conviction that from 80 to 90 per cent. of the army were now protected. With regard to the question of mortality no death had occurred in the fully protected patients, one only in the partly protected, and 45 in the uninoculated cases. The influence of inoculation upon the severity of the case was also made evident by the figures obtained during the last six months. The available material might be classed as follows:—

	Inoculated (40).	Uninoculated (106).
1. Severe	9	56
2. Average	17	34
3. Mild	9	8
4. Early	5	8

Turning to the question of vaccine treatment, the speaker admitted that nothing was harder to answer as to whether vaccine treatment in typhoid was a success or not. In a series of 146 cases 94 had been treated by vaccines. The results might be given as follows: Good, 28; doubtful, 30; no benefit, 17; too early to judge 19; total, 94. The large majority of cases have not had a fair chance of proving the value of vaccines. They are seen too late, very large numbers not being treated until the end of the second or well into the third week. Also, many of the patients treated by typhoid vaccines have later proved to be paratyphoid infections. Furthermore, the cases treated by vaccine are usually the most severe, the milder conditions recovering without resort to these measures. As a result of this no controls are available. With regard to Sir Bertrand Dawson's suggestions on the use of mixed vaccines of typhoid and paratyphoid he (the speaker) said that the matter had been under consideration, but personally he had been against the same on two grounds—(1) increased danger; and (2) the possibility of damaging the typhoid element in the vaccine. Referring to paratyphoid B he agreed that many mild cases of this type were undoubtedly being missed. The majority of them remained in stationary or clearing hospitals. As Sir Bertrand Dawson had remarked, paratyphoid B had hæmorrhages and relapsed, but perforation very rarely occurred, if at all. Concerning Widal's reaction, the speaker said that if the bacteriologist had the time at his disposal to apply the test thoroughly, it was capable of giving very valuable information. The anomalies that from time to time occurred could be explained. For example, with regard to fluctuation, it must be remembered that the height of agglutination is only a rough index of the amount of protective substances in the blood. These substances vary in cases of severe infection—e.g., agglutinins disappear just before death. It is therefore not to the discredit of the test that these variations occur. He (the speaker) was glad to hear Sir Bertrand Dawson lay stress upon the importance of blood cultures. As a matter of fact, all cases are now being dealt with systematically on these lines, and the number of occasions upon which bacteria have been found in the cultures has been considerable. Probably the number of organisms present in the blood varies on different days of the disease, as is the case with plague. With regard to the previous speaker's suggestions of obtaining blood from the spleen or liver, French physicians had

made investigations concerning the former organ but had since abandoned the method, which was hardly justifiable. It was not difficult, all the same, to obtain blood from the spleen, and in kala-azar from 200 to 300 cases had been investigated without danger or mishap. Hepatic puncture would probably be of little use owing to the difficulty of obtaining hepatic blood. Unless the tissue is definitely broken up the blood obtained would be that circulating and not true hepatic. In conclusion, Colonel Leishman referred to the value of autogenous *versus* heterogenous vaccines in the case of typhoid fever. He agreed that so far the ideal vaccine has not been reached. The army vaccine has given very good results in the past, and he preferred to employ a preparation of proved value than one of uncertain worth. Rawling's vaccine was as good as any, and when a good antigen was known it was inadvisable to waste time in using a possibly inferior strain. The question of employing living cultures was undoubtedly an important one. Lieutenant Rowlands, at No. 10 Stationary Hospital, had used living cultures upon four occasions and the attacks seemed to have been aborted. Further trials were needed before a definite reply upon this matter could be given.

Lieutenant HAROLD WILTSHIRE said that owing to the very short period he had been in charge of the typhoid cases in Rouen he was unable to speak at length. At No. 12 General Hospital 68 cases of enteric fever had been treated, and of these 10 had died. With regard to the value of preventive inoculation, the figures from Rouen had been included in Sir William Leishman's report. It was a matter of extreme difficulty to ascertain in many instances whether a man had been inoculated or not. The army pay book was not always available, and in some instances men said that they had been inoculated when the reverse was the case. The effect of inoculation upon the Widal reaction urgently requires investigation. In practice the test is only pushed to the degree of diagnosis and not to its highest dilution. Blood cultures had been taken in 35 cases. The method was a very useful one, and was now the routine. In discussing the points of diagnosis, Lieutenant Wiltshire laid special stress upon the slow pulse, the great help derived from the tongue, the slightly full and tympanitic abdomen, and a gurgle in the right iliac fossa. As illustrative of the difficulties of diagnosis he referred to the abortive and ambulatory types of the disease and quoted cases which were only proved by conducting a bacteriological investigation of the faeces. He suggested that possibly the clinical aspect of the disease is modified by inoculation, since so many of the cases resembled influenza. He was inclined to the belief that, as a rule, when an inoculated patient gets typhoid he was a mild but typical case. As regards vaccine treatment, out of 68 cases, 48 had been treated by vaccines, and of the latter 45 had been heterogenous and of the "stock" variety. In 21 no improvement was noted and in 24 it did good. The dosage had been 125 million, working up to 500 million. No ill effect had been seen from larger doses. Late in the disease vaccines may give an increased possibility to hæmorrhage, but as a rule in practice this symptom occurs so late that vaccines are not required. The time for vaccine treatment is undoubtedly the first fortnight, and the speaker suggested that it should be combined with anti-endotoxic serum. The vaccine will kill the bacteria and the serum will neutralise the toxin. Concerning drugs, urotropine in large doses had been tried, but so far no improvement had been noted. Salol and other antiseptics also appeared to be useless. In order to prevent the foul condition of the mouth Lieutenant Wiltshire recommended the employment of chewing gum. He was accustomed to prescribe it in every case where nutrient enemata were indicated.

Major A. B. SMALLMAN said that case mortality is the true test of the value of vaccine treatment and this had been amply proved by the figures laid before the meeting. He referred to a series of 235 cases treated in South Africa, some by heterogenous and some by autogenous vaccines, but in both the total case mortality was very low. With regard to the risks of hæmorrhage from vaccine treatment data were required as to the dosage employed. It was possible to overload a patient. As regards local conditions the value of vaccine treatment was very striking if full-strength doses were employed.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

X Ray Appearances of Some Common Disorders of the Stomach.

A MEETING of this society was held at the West London Hospital on March 5th, Dr. F. S. PALMER, past President, being in the chair.

Dr. REGINALD MORTON read a paper on the X Ray Appearances of Some Common Disorders of the Stomach, which was illustrated with a number of lantern slides. He emphasised the necessity for keeping all the conditions during an X ray examination of the digestive organs as nearly normal as possible. The patient should be prepared by giving a laxative the second night before the examination, and the opaque meal was to take the place of the usual breakfast. This meal should be of some ordinary food such as porridge or bread-and-milk, and the substance used to make it opaque to the X rays quite inert and free from any possible chemical or physiological action, the two best materials being bismuth oxychloride and barium sulphate. Bismuth carbonate neutralised the gastric juice and should not be used. After indicating possible sources of error in observation, Dr. Morton first showed the appearances of a normal stomach, antero-posteriorly and laterally, in a young healthy adult, and explained how the appearances of this differed from our original ideas of the size and shape of the stomach—the absence of muscular tone being the chief factor on the operation table and post mortem. He then demonstrated how easily the form and position of the organ were influenced by mechanical, reflex, and sensory impressions, proving it to be a very sensitive part of the digestive system. Turning to the pathological stomach, he showed instances of atony, one of the most common abnormalities, sometimes existing alone, but most often in association with gastric ulcer or pyloric obstruction or both. The spasmodic constriction of the circular fibres commonly associated with gastric ulcer was shown in several cases and the method of distinguishing the spasmodic from the organic contractions explained. One case in particular showed the truth of the epigram which says, "The most frequent seat of gastric ulcer is in the right iliac fossa." The stomach showed the presence of at least two ulcers as well as some degree of pyloric obstruction. Suspicion rested on the appendix, which was found to be catarrhal and was removed by Mr. Aslett Baldwin. A radiogram made five months later showed a normal stomach. Cases exhibiting different stages in the development of the condition of hour glass stomach were shown, those of the organic type being both various and striking. Of these the X ray examination gave a large amount of information as to the relative size of the two sacs and their condition—an important point in the matter of operative procedure. In most cases gastro-enterostomy was the only possible operation but where the lower sac was seen to be acting fairly well and no indication of pyloric obstruction, as sometimes happens, the question of joining the two sacs by a gastro-gastrostomy should be considered. An effort should be made to preserve the gastric digestion where the circumstances made this possible. Dr. Morton suggested this as a suitable subject for discussion, and he hoped some evidence as to the condition of patients who had undergone gastro-enterostomy several years previously might be forthcoming. In conclusion, he explained how any paper dealing with one part of the digestive system was bound to be incomplete, so intimately were the various parts linked together through their nervous mechanism; it was impossible to study the disorders of one part while ignoring the others. His object was to help those who were not radiologists more accurately to visualise the various disorders of the stomach as they occur under the ordinary conditions of everyday existence, and he hoped he had met with at least some small degree of success.

Dr. PALMER, after speaking of the interesting character of the paper and the clearness of the radiographs shown, went on to say how important had become the X ray method in the diagnosis and treatment of gastric affections, and gave instances where it had proved the existence of disease quite different from what the clinical signs and symptoms indicated. He would like to ask Dr. Morton if it was not the case that barium gave a better shadow than bismuth.

Dr. STANLEY MELVILLE paid a warm tribute to the excellence of the radiographs illustrating the paper, and said that he considered the use of aperients inadvisable in the preparation of the patient for the X ray examination, and instanced how the use of liquid paraffin could quite upset any idea of stasis being present unless its use was discontinued a week or ten days before the examination. He quoted a case similar to one stated in the paper which showed how difficult it was at times to make a clear diagnosis, but fortunately such cases were gradually becoming more infrequent as our knowledge of the subject increased.

Dr. E. ARTHUR SAUNDERS, while admitting the value of the X ray method in the diagnosis of digestive conditions, considered that they should be careful not to attach too much importance to those appearances, since it occasionally happened that the middle portion of the stomach was congenitally narrowed and yet performed its function normally; also it was well known that many cases of undoubted stasis in some part of the digestive tube did quite well with the use of paraffin and without surgical interference.

Dr. MORTON, replying to Dr. Palmer, said that he had made many experiments with different salts of bismuth and barium to determine their relative opacity to the X rays. Speaking generally, it was found that barium was less dense than bismuth, and this was only to be expected considering that opacity to the X rays was purely a matter of atomic weight, that of bismuth being much higher than barium. A layer of barium sulphate had to be about 50 per cent. thicker to give an opacity equal to a bismuth compound. In the preparation of opaque meals this was compensated for by using a correspondingly greater amount of the barium salt. Replying to Dr. Melville, Dr. Morton said that of course if the patient had been in the habit of taking paraffin it should be discontinued for some days previously, but an ordinary aperient should be given to clear out the colon so that the progress of the opaque meal could be free from this form of interference. He quite agreed with Dr. Saunders as to the need for caution in estimating the importance of X ray appearances.

ÆSCULAPIAN SOCIETY.

Jaundice.

A MEETING of this society was held at the Metropolitan Hospital on March 5th, Dr. DAVID ROSS, a past President, being in the chair.

Dr. W. LANGDON BROWN read a paper on Jaundice, in the course of which he said: Jaundice is a classical example of striking symptoms of varying significance due in all but one type to obstruction of a bile-duct. The obstruction may be: 1) within the tube, due to gall-stones, catarrh, or parasites; 2) in the walls of the tube, due to stricture, atresia, or new growth; and (3) outside the tube, due to pressure from new growth in the head of the pancreas or lymphatic glands. Cases without obvious obstruction give rise to much controversy. A patient may be born jaundiced or become so soon after birth, as in cases of congenital cholemia or acholuric jaundice. Absence of pigment in faeces indicates obstruction, but the presence of excess of fat in the stools due to pancreatic disease may completely mask the presence of bile pigment and simulate the clay-coloured stools of jaundice. In many cases of jaundice suitable methods of extraction will prove the presence of pigment. This is so in the case of gall-stones more than in new growth and may be of diagnostic value. We can in certain cases of fatty stools determine whether the pancreatic juice or bile is at fault. If the excess of fat is due to pancreatic defect, unsaponified fat will be in excess of saponified. If the excess of fat is due to loss of bile saponified fats will be in excess because they cannot be adequately absorbed. Wasting occurs on this account. Bile is a natural stimulant of peristalsis, and so its absence constipation occurs. Bile, though claimed as an antiseptic, cannot keep itself from putrefaction. As a matter of fact, the bile salts and fats are so slowly absorbed that they coat over the proteins, which therefore undergo bacterial decomposition instead of quick assimilation. Hyperchlorhydria is a common accompaniment of jaundice, particularly if associated with pain. Bile pigment appears in the urine before it can be detected in the conjunctiva, and disappears from the urine last. Bile salts may be found

in the urine before bile pigment by the method of Matthew Hay. Flowers of sulphur placed on urine sink in their presence. The majority of cases of jaundice do not show bile salts in the urine, and those which normally enter the bowel are reabsorbed and used over again up to ten times. Urobilin is absent from urine in complete obstruction of the bile ducts, as it is a reproduction product formed by bacterial action on bile pigment in the bowel. Bile reaches the blood through the lymphatics and the thoracic duct. This may account for the appearance of bile pigment in the blood serum two hours after ligation of the bile duct, and therefore before it appears in the conjunctiva or skin. Anæmia is not typical of ordinary jaundice and so differentiates from congenital family cholemia. Small hæmorrhages may occur on the skin produced by scratching excited by pruritus. One of the most definite results of jaundice is bradycardia, with a low-pressure diastolic pulse. Toxicæmic jaundice will be accompanied by headache, delirium, and ultimately coma. Bile pigment appears in the skin soon after it does in the conjunctiva. The well-known lemon tint of pernicious anæmia is associated with a pearly white conjunctiva. Itching is troublesome, and the best treatment is by thyroid extract. Saliva, tears, and milk are not bile-stained. Sweat is said to be, but this is exceptional. After the use of pilocarpine this may be so. Nasal and bronchial mucus is not tinged with bile, nor is expectoration in bronchitis unless pneumonia or oedema of lung should occur. In cases of mastitis the milk is also stained. The absence of bile salts from the intestine constitutes the most important symptoms of jaundice—stearrhoea, wasting, intestinal putrefaction and constipation; their presence in the blood, bradycardia, headache, depression, pruritus, and sometimes hæmorrhages. Treatment: Soft carbohydrates and green vegetables promote flatulence. The fats, while diminishing the secretion of acid in the gastric juice, depend on bile for their absorption, and if not absorbed they increase intestinal putrefaction by coating over the proteins. Moreover, their influence in producing obesity must not be forgotten. The practical deductions from these considerations are: 1. White fish, eggs, cheese, and mutton may be allowed, while soups, broths, liver, kidney, sweetbreads, and rump steak should be forbidden until the hyperchlorhydria is checked. 2. Dry forms of carbohydrate, such as biscuits, rusks, and toast, are preferable to bread and ground rice puddings and the like, because they demand mastication before they can be swallowed, and therefore undergo a considerable degree of digestion by the saliva. 3. Sweets can be selected from jelly, egg custard, omelette, junket, and stewed fruit. 4. At first vegetables had better be forbidden altogether, for though cellulose is an aid to peristalsis it promotes flatulence. As the patient's intestinal condition improves this rule may be gradually relaxed. 5. Fats in the form of butter, cream, or fat meat should only be allowed in small amounts, for the reason given above. It is important that water should be drunk to prevent inspissation of the bile. Patients do not care to be told to drink water from the tap, preferring, as of old, the waters of Abana and Pharpar. It is well, therefore, to select a spring which is mildly aperient, slightly alkaline, and one which is not too highly mineralised. Milk is usually recommended as the mainstay, but owing to its comparative richness in fat it is not really suitable, and is often much disliked by the patient. It is preferable to give barley water with the white of an egg, and a teaspoonful of plasmon or somatose to each half-pint, flavoured with lemon. Tea is usually forbidden, though it is difficult to see on what grounds. Jaundiced patients often crave for it, and if made in the Russian fashion without milk but with a slice of lemon in it, it seems free from objection. If the practitioner feels reluctant to abandon milk it should be separated or thoroughly skimmed to get rid of as much fat as possible, and then a grain of sodium citrate added to each ounce of milk to diminish curdling. Benger's food, calves' foot jelly, and lemon sponge can usually be taken without difficulty. Mineral waters of an alkaline type may be drunk freely. When the bile pigment has returned to the faeces the patient feels much better though still jaundiced. He can now get up and the diet should be cautiously increased. There is often considerable depression during convalescence, for which strychnine and calumba may be given. Dilute nitro-hydrochloric acid in 10-minim doses is often advised, but should not be given until all signs of obstruction have passed off.

Reviews and Notices of Books.

Materia Medica: Pharmacy, Pharmacology and Therapeutics.

By W. HALE WHITE, M.D., F.R.C.P. Lond., M.R.C.S. Eng.
Fourteenth edition. London: J. and A. Churchill. 1915.
Pp. 712. Price 6s. 6d. net.

THE consideration of the fourteenth edition of a student's text-book on *materia medica* ordinarily affords little scope for critical faculties. The author presumably has long since decided upon the range of the information demanded by his readers, and has, no doubt, found from experience an appropriate mode of selection and presentation of material culled from judicious study of recent literature. After the form of presentation has been determined there is little scope for the display of originality; accordingly it only appears to be necessary to note the incorporation of new material which has resulted from recent advances in research, or from authoritative recognition in the new British Pharmacopœia.

With regard to the former, much interest attaches to the section called in the table of contents "Pharmacopœial Organic Animal *Materia Medica*," but in the text more correctly designated "pharmacopœial substances derived from the animal kingdom." Even this title is not quite right, since many of the substances dealt with are certainly not pharmacopœial, though they are used medicinally; in each instance, however, the unofficial character is duly noted. In this section are included several of the more important sera and vaccines, and in some instances there are a few brief notes concerning their mode of preparation. The mode of administration and the indications for their employment are given in greater detail and are likely to be of service to young practitioners. Of the very large number of unofficial compounds which are dealt with in this book it may be sufficient to mention the following: methyl chloride, anestyle, ethyl bromide, medinal, adalin, salipyrin, citrophen, pyramidon, tolpyrin, exalgin, methylene blue, orthoform, antikamnia, and omnopon (which, by the way, is incorrectly termed "panopton"). The notes relating to these and to similar new compounds are very brief, but they will serve to identify the substances without referring to other sources of information. Some four pages are devoted to unofficial compounds of arsenic, including salvarsan and neosalvarsan. Clear directions are given for the mode of administration of these preparations, and the therapeutic uses are discussed. Notwithstanding all that has been written of its value, the author thinks that sufficient time has not yet elapsed for us to be sure that syphilis is permanently cured by salvarsan, and in spite of its employment he advocates giving subsequently a course of mercury for two or three years.

The inclusion of new official information has been very deftly accomplished. Frequently it has been found possible to save space by brief reference under a former article so as to avoid repetition of many pharmacological and therapeutic details. In other instances it has not been necessary to effect any change, since the official mantle is extended only over drugs which have already found favour with the medical profession, and accordingly these in their unofficial stage have been previously dealt with in former editions. In the preface the

author has given a series of tables showing the official additions and omissions, and has also indicated the chief alterations in strength and in nomenclature. Incidentally it may be mentioned that he is in error in stating that the British Pharmacopœia gives an official abbreviation for the name of each official substance and preparation. The list to which he refers indicates the abbreviations adopted in the index; they do not form part of the official monographs.

In general terms it may be said that this new edition is a worthy successor to former editions; considerable care has been taken not to overload with detail of doubtful value concerning new remedies; exaggerated statements are avoided, and the author maintains an impartial spirit through which a vein of scepticism may often be discerned. This exhibition of restraint is a welcome characteristic of this book, and is no doubt one of the secrets of its success.

Medical Diagnosis.

By ARTHUR LATHAM, M.A., M.D. Oxon., F.R.C.P. Lond., and JAMES A. TORRENS, M.B., B.S. Lond., M.R.C.P. Lond. With 74 illustrations, 19 in colour. London: J. and A. Churchill. 1915. Pp. xii. + 641. Price 15s. net.

DURING the last few years several text-books, large and small, of medical diagnosis have been published, and speaking generally have been constructed upon one or other of two separate plans. One method sets out with the various physical signs and symptoms that may be exhibited by the patient; and under the heading of each of these gives an account of, and the method of distinguishing between, the different diseases in which each sign or symptom may occur. French's "Index of Differential Diagnosis" (reviewed in THE LANCET of Nov. 9th, 1912) affords an excellent example of books of this kind. The second plan of campaign, adopted, for example, in W. M. Stevens's "Medical Diagnosis" (reviewed in THE LANCET of April 22nd, 1911), is to take the different diseases from which man suffers as headings, and under each heading to detail the various means of diagnosing each disease from others that may be confused with it. This is the plan adopted by Latham and Torrens, and we may say at once that they have carried it out with no small measure of success.

The book is divided into six parts, in which are discussed certain specific infective diseases and helminthiasis, diseases of the blood and allied conditions, diseases of the heart, lungs, and alimentary tract, diseases of the pancreas and kidney, diseases of the nervous system, and, finally, certain diseases of the skin. The information given under the heading of each disease is well arranged, and by the use of subheadings and different founts of type is set out clearly so as to catch the eye. The authors have been sparing in their use of words, with the result that the text achieves a brevity and directness for which medical students who consult the book will be grateful. At the same time little that is essential seems to have been omitted, although it has naturally not been possible to include in a volume so moderate in size the rarities of disease that very properly find their place in the much larger text books of medical diagnosis mentioned above. It is inevitable that a few blemishes should appear in the text of a volume covering so large an area as this. "Typhoid spine" is described (p. 18) as neuritis or neuralgia without any mention of the osteitis or periostitis that so often occurs with it.

tuberculous meningitis is said (p. 86) to be rare in the first year of life, yet the Registrar-General's returns for 1910, for example, show that it occurred in 13 per 10,000 of the children born; in the excellent chapter on the examination and analysis of urine no mention is made of the fact, established by Mörner, that traces of albumin (up to perhaps 50 milligrammes per litre) appear in normal urine. Many of the illustrations are admirable. The microphotographs borrowed from Slater and Spitta's Atlas, very well reproduced, are indeed more informing than the explanatory text that has been provided to accompany them. Abundant reference to laboratory methods of diagnosis is made throughout the volume, with the result that the reader is placed in command of all the more practical means of expert diagnosis.

The authors set out with the intention of writing a book in which medical diagnosis should be considered from the points of view of both clinical medicine and the clinical laboratory, for the benefit of the medical student and the medical practitioner. They are to be congratulated upon the result of their labours, which may be recommended to readers of both these classes.

Anæsthesia.

By JAMES TAYLOR GWATHMEY, M.D. New York, in collaboration with CHARLES BASKERVILLE, Ph.D., F.C.S., Professor of Chemistry in the College of the City of New York. With 283 illustrations in the text. New York and London: D. Appleton and Co. 1914. Pp. 945. Price 25s.

As a comprehensive work of reference in which to find all kinds of transatlantic achievement in relation to anæsthetics this compilation is likely to hold for long a foremost place. It is more in the nature of a "system" of anæsthetics than of an individual compilation, the list of contributors containing no less than ten names. It is noteworthy that not only Dr. Gwathmey's co-editor but also his contributors are none of them professed anæsthetists, but all surgeons, physicians, dentists, or chemists.

It is the first inclination in perusing a work of this kind produced out of Great Britain to reflect upon its probable nature had it been essayed here, and the idea readily occurs to one that a larger proportion of its pages would have been entrusted to anæsthetists pure and simple. The result would have been probably less interesting if of more practical detail. The next comparative reflection is this, that by the practice in America of doing most operations in hospitals the American anæsthetist is at a great advantage over his British *confrère*, inasmuch as portability and complexity of apparatus need hardly be taken into account. Consequently we find an elaboration of apparatus and of technique in American practice which is of necessity absent in these islands, at any rate from private practice. Whether such elaboration is always of service is another question, but at least it is a great advantage that no question of mere convenience should have to be considered when the adoption of some superior method is at stake. Thus the practice of warming and vaporising all anæsthetics before their admission to the respiratory passages is strongly recommended, and evidently largely employed by Dr. Gwathmey, and this, like the prolonged administrations of nitrous oxide and oxygen also in favour in America, requires extensive apparatus. Two chapters are devoted to colonic anæsthesia, with a very long description of apparatus; to mental influence and

hypnotism in anæsthesia; to therapeutic uses of inhalation anæsthetics, and to the medico-legal status of the anæsthetist. The sequestration method of anæsthesia, and electric analgesia, sleep, and resuscitation are also fully dealt with.

It will be readily understood, therefore, that the editors have produced a volume of wide interest to the student of anæsthesia, and the portion of the book for which Dr. Gwathmey is himself responsible provides practical information of a detailed character such as would be expected of an anæsthetist with his extensive experience. In addition he has been at the trouble to collect a large number of statistical data from which a table of conclusions as to the safety of various agents and methods is drawn up, and he has provided an unusually complete list of all the substances that can be used for the production of any kind of anæsthesia.

The Acute Abdomen.

By WILLIAM HENRY BATTLE, F.R.C.S. Eng., Senior Surgeon to St. Thomas's Hospital; formerly Joint Lecturer on Systematic Surgery and on Practical Surgery to St. Thomas's Hospital Medical School, &c. Second edition, enlarged and illustrated. London: Constable and Co., Limited. 1914. Pp. 295. Price 10s. 6d. net.

WE are glad to see the appearance of a second edition of this work, whose utility cannot be in question, for it helps to elucidate some of the most difficult problems with which the surgeon can be confronted. The great power possessed by the modern surgeon in dealing with acute abdominal diseases depends mainly on early diagnosis and treatment, and to those who have not had much experience in this branch of surgery a work such as this should prove very helpful.

The surgery of the acute abdomen has become simplified, and we agree thoroughly with the author when he says that the methods to be described should be as simple as possible, so that no practitioner need fear to make an attempt to save a threatened life because he has not some particular clamp, bobbin, or brand of catgut in his possession. The chief additions to the present edition are those on the planning of abdominal incisions and on injuries to the abdomen. A valuable feature is to be found in the histories of cases. These are very instructive and give the reader much clearer ideas than generalised descriptions of symptoms would have given. There are naturally many points in the book that invite discussion, but it must be acknowledged that the views put forth by Mr. Battle are eminently reasonable and afford evidence of his wide experience.

A Manual of Physiology, with Practical Exercises.

By G. N. STEWART, M.A., D.Sc., M.D., Professor of Experimental Medicine in Western Reserve University, Cleveland. Seventh edition. With coloured plate and 467 other illustrations. London: Baillière, Tindall, and Cox. 1914. Pp. xxiv.-1132. Price 18s. net.

WE reviewed the sixth edition of this now standard work in THE LANCET of Feb. 11th, 1911. It may be taken for granted that any well-approved text-book on such an ever-progressive subject as physiology which has reached its seventh edition during a period of 18 years is one which by its sterling qualities and the scope and usefulness of its subject-matter has met the requirements both of medical students and practitioners who wish to keep up to date. More especially is this the case when the comparatively new subject of biochemistry is making such important and withal practical strides. Obviously this consideration

has impressed the author, for he has practically rewritten the chapter on metabolism as well as that on the allied subject of the actions of enzymes, while blood gases are considered in much greater detail than in previous editions. Additions have been made to most of the other subjects, while the important newer work on the relation of heat production and the chemical changes in muscular contraction has been taken account of. The longer chapters—we think with great advantage—have been broken up into sections, the number of illustrations has been increased from 450 in the sixth edition to 467 in the present edition, and the number of pages from 1064 to 1132.

Very decided improvements in and substantial additions to the chapters on blood have been made, including the newer facts on fibrin formation in normal and hæmophilic blood revealed by the ultramicroscope. The ingenious "Vivi-diffusion" apparatus of Abel is figured and described. A new table with wave lengths of the spectra of hæmoglobin and its derivatives replaces a simpler form. We have carefully compared this edition with the last one, and we find additions and improvements in all subjects. A most useful addition is the list of the best known enzymes in the body. Some rearrangements have been made whereby formation of lymph comes after absorption and before excretion. It appears that in the males of certain aquatic birds erection is due to the filling of the corpus cavernosum not with blood but with lymph. The secretion is under the influence of nerves. Some interesting comments and suggestions are made on vitamins. The diagram of Du Bois-Reymond's inductorium leaves something to be desired. Obviously the title "possibility of recovery of muscles after rigor" is a better one than "the recoverability of rigor." Many additions and some excisions have been made in the chapter dealing with the central nervous system. Less than three pages suffice for the autonomic nervous system.

We have no hesitation in recommending Professor Stewart's "Manual of Physiology" as at once comprehensive, trustworthy, and thoroughly up to date on every subject with which it deals.

MISCELLANEOUS VOLUMES.

SEVERAL books on nursing, both general and under special conditions, claim attention.

The first of these, *Notes on Nursing*, by FLORENCE NIGHTINGALE (New edition. London: Harrison and Sons. 1914. Pp. 160), is a reprint of the edition of 1861, which contained Miss Nightingale's latest corrections. The first edition had appeared in 1859, and "was instantly recognised," as Sir Edward Cook says, "by the leaders in medical and sanitary science as a work of first-rate importance; as one of those rare books to which, within their range, the term epoch-making may rightly be applied." It need not be said that the conditions of hospitals, and of nursing, and the general education as well as the professional training of nurses, are at the present day very different from what was the case then. Nevertheless this book "can never be out of date, and no one who has ever read it has found it dull." Miss Nightingale herself said that the notes were meant "simply to give hints for thought to women who have personal charge of the health of others." This really applies to almost every woman, in whatever station of life she may be, or whatever be her occupations. It may be safely said that hardly anyone can read the book without learning something, and no one can read it without pleasure. Though originally published as far back as 1859, in what we are accustomed to consider the dark ages before sanitation was understood, or indeed even much thought about, the very first chapter in the book deals with ventilation, showing that the author was even then fully alive to the importance of fresh air, much more so than was the case with many physicians. The subjects of health in the house,

food and its administration, observation of the sick, &c., are considered, and cleanliness and fresh air insisted on over and over again. The details of nursing practice in 1915 must, of course, whether in medical or surgical cases, be learned from an instructor versed in modern methods; but the real meaning of nursing, its principles, the spirit in which it should be carried out, and the qualities of intelligence and disposition that are needed for the proper exercise of the calling can never be better learned than from this book. To the rising generation Florence Nightingale must not become a mere *nominis umbra*. To those who actually knew her, and to those who have known the extraordinary influence that she exerted on her charges, colleagues, and subordinates, and on the most cultivated and intellectual of her contemporaries, the re-issue of this little book will come as a welcome reminder. To all concerned with the care of the sick or wounded in any way it will be a pleasure and a profit to possess it. The story of the "Lady with the Lamp" cannot be too widely known, nor her example too closely followed.—A somewhat pretentious work is *Practical Nursing, a Text-book for Nurses*, by AMY C. MAXWELL, Superintendent of Presbyterian Hospital School of Nursing, and AMY ELIZABETH POPE, formerly Instructor in Presbyterian Hospital School of Nursing. (Third edition. Illustrated. London and New York: G. P. Putnam's Sons. 1914. Pp. 873. Price 7s. 6d. net.) After a short initial chapter on the qualifications for a nurse and professional etiquette, a rather sudden plunge is made into bacteriology, a short résumé of the whole subject, including disinfection, being given in Chapter II. The next chapter deals with the composition of air and ventilation, after which practical nursing is entered on, with instructions as to the care of a ward, bedmaking, and the care of the patient. A description of symptoms and signs in disease, and of the use of therapeutic methods, medicines, and enemata, follows; after which the care of operation cases, operating room technique, and surgical emergencies are dealt with. Two hundred pages are devoted to a synopsis of the more important diseases and the subject of food generally. The authors have been industrious in producing a compilation on pretty well all the subjects that a nurse needs to be instructed on, but it cannot be said that the endeavour to compress medicine, surgery, and dietetics into 200 pages in a nursing manual has been successful. A considerable number of doubtful statements are met with, and there is lack of order and arrangement. To say that "cholera occurs principally among the natives of India and China" (p. 678) is strictly true, but misleading. The portion of the book dealing with nursing is adequate and trustworthy.—*Modern Medical and Surgical Nursing for Probationers* (London: Poor-law Publications Company. Pp. 228) consists of selected lectures by C. SEYMOUR YAPP, matron of the Poor-law hospital at Ashton-under-Lyne, and contains a more complete and thorough course of instruction than is usually afforded in nursing manuals. It consists of 47 lectures delivered to the first, second, and third year nurses. The author has evidently great experience, and is able to express her views clearly and concisely. The point that distinguishes this book from the generality of nursing manuals is that it enters more into detail, and is more comprehensive than is usually the case. Nothing in the whole range of nursing is omitted, and there is not a sentence that is redundant. It is to be highly recommended. Theoretically, perhaps, there should be no distinction between the ethics of general and professional life inasmuch as the standard of moral conduct ought to be founded on what is known as the Golden Rule. In practice, however, just as the standard is modified according to certain individual relationships, so in the specific application of ethics to professions circumstances may modify the rules that men apply when dealing with others outside the ordinary relationships of man and man. The special ethics of the nursing profession have received much less attention from writers than those of the medical profession, and Dr. T. PERCY C. KIRKPATRICK, the Registrar of the Royal College of Physicians of Ireland, is to be congratulated on the sympathetic and able way in which he deals with the subject in a lecture on *Nursing Ethics*, recently published by the Dublin University Press. He strikes the keynote of the lecture when he says: "A high standard of nursing ethics involves a high standard of general ethics, or, in other words, a good nurse must first be a good woman." This

truth has been admirably exemplified in the life of Florence Nightingale. She it was who made nursing a real profession and caused the extinction of the low type of nurse so prevalent before the Crimean War. Dr. Kirkpatrick, after briefly sketching the history of nursing in this country, said that when hospitals began to spring up in both England and Ireland the nurses, generally drawn from the lowest social class, were looked upon merely as servants. After discussing the principles which should guide the conduct of a nurse in the hospital, where, besides acquiring a technical knowledge of her profession, she should imbibe those ethical principles which are to guide her through life, and where she is in somewhat the position of a hostess ministering to her guests, Dr. Kirkpatrick passes on to the status of the private nurse, between whom and her patient the position of hostess and guest is reversed. Attention to detail, thoroughness,

cleanliness, loyalty, and, above all, sympathy are emphasised. The nurse who lives up to principles laid down in this useful brochure can hardly fail to uplift the standard of her profession.

AMY E. POPE, one of the authors of a work noticed above, has also produced *A Medical Dictionary for Nurses* (London and New York: G. P. Putnam's Sons. 1914. Pp. 288. Price 3s. 6d. net). The technical terms in medicine and surgery are shortly explained; many non-technical terms in ordinary use, such as breath, capacity, inadequate, and so forth, are defined somewhat unnecessarily, and others, such as toxoid, toxon, and toxophore group, seem to have no connexion whatever with a nurse's work. Such criticism is, however, applicable to many technical dictionaries, and the present volume is handy and useful.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for Month ending Dec. 31st, 1914.

1	2	3	4	5	6	7	8	9	10	11	12
Place.	Correspondent.	Rainfall in milli- metres.	Metric tons of deposit per square kilometre during month.								
			Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
			Tar.	Carbon- aceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO ₄).	Chlorine (Cl).	Ammonia (NH ₃).
ENGLAND—											
Birmingham, Central ...	Dr. J. Robertson, M.O.H.	158	0.56	5.36	15.42	2.53	10.42	34.29	5.52	1.10	0.13
" Aston ...	"	153	0.11	2.70	7.53	1.83	6.25	18.42	3.64	0.99	0.06
" S.W. ...	"	185	0.06	0.92	2.39	0.56	4.17	8.10	1.68	0.93	0.02
Bolton ...	Dr. J. E. Gould, M.O.H.	171	0.10	2.89	8.88	4.77	11.59	28.23	6.47	3.24	0.15
Exeter ...	Mr. F. Southerden.	185	0.05	1.42	2.59	2.96	7.71	14.73	2.83	1.86	0.06
Kingston-upon-Hull ...	Mr. A. R. Tankard, Public Analyst.	100	0.06	2.84	5.88	2.15	5.94	16.87	3.12	0.92	0.11
Liverpool ...	Dr. E. W. Hope, M.O.H.	125	0.40	2.61	9.84	5.99	3.75	22.59	4.11	1.77	0.23
London— Meteorological Office ...	Director, THE LANCET Laboratory.	114	0.19	1.25	4.53	6.36	6.48	18.86	4.10	1.44	0.11
Embankment Gardens ...	Mr. J. Ollis, Chief Officer, Public Control Depart- ment, L.C.C.	126	0.19	4.41	7.90	0.25	9.10	21.85	4.75	1.61	0.10
Finsbury Park... ..	"	108	0.62	2.69	5.42	2.59	8.43	19.75	3.04	0.69	0.04
Ravenscourt Park ...	"	150	0.01	1.58	4.23	0.90	7.51	14.23	3.21	0.32	0.07
Southwark Park ...	"	152	0.22	4.47	7.84	3.33	12.14	28.00	5.55	1.18	0.17
Wandsworth Common ...	"	127	0.05	1.47	4.03	1.02	10.18	16.75	5.13	0.81	0.08
Victoria Park ...	"	149	0.05	1.33	2.91	1.79	6.89	12.97	3.41	0.95	0.08
Golden Lane ...	Dr. W. J. Howarth, M.O.H.	144	0.12	3.16	4.76	4.61	8.64	21.29	6.05	1.43	0.17
Malvern ...	Mr. W. Osborne Thorpe, Engineer U.D.C.	80	0.01	0.21	0.62	0.95	1.59	3.39	0.79	0.56	0.02
Manchester—											
Cheadle ...	Mr. J. Warrington, Secretary, Air Pollution Advisory Board.	109	0.08	1.32	2.07	1.00	2.83	7.30	1.74	0.86	0.08
Davyhulme ...	"	121	0.04	0.95	3.19	1.45	6.00	11.63	3.37	1.17	0.13
Fallowfield ...	"	103	0.08	1.19	3.75	1.13	5.76	11.91	3.00	0.89	0.06
Whitefield ...	"	133	0.06	1.56	5.51	3.67	10.20	21.00	5.14	3.43	1.85
School of Technology ...	"	117	0.15	2.03	2.88	1.45	6.26	12.77	3.46	1.41	0.10
University* ...	"	—	—	—	—	—	—	—	—	—	—
Newcastle-on-Tyne ...	Dr. H. Kerr, M.O.H.	88	0.12	4.71	8.35	1.75	7.53	22.46	3.12	1.38	0.42
Oldham ...	Dr. J. B. Wilkinson, M.O.H.	120	0.27	7.61	17.40	2.88	8.66	36.80	3.99	1.41	0.17
Sheffield— Attercliffe Burial Ground	Prof. W. P. Wynne, The University.	100	0.13	4.02	8.77	2.31	7.25	22.48	3.44	1.82	0.07
Hillsborough Park ...	"	108	0.09	1.42	3.32	0.50	6.35	11.68	2.61	1.28	0.07
Meersbrook Park ...	"	124	0.10	0.91	2.17	2.67	4.16	10.01	2.81	1.50	0.06
Weston Park ...	"	111	0.12	1.36	3.20	1.77	5.63	12.13	2.56	1.21	0.04
York... ..	Dr. E. M. Smith, M.O.H.	106	0.14	1.92	3.34	1.70	5.11	12.21	2.85	1.21	0.80
SCOTLAND—											
Coatbridge* ...	Mr. A. G. Dutch, Chief Sanitary Inspector.	—	—	—	—	—	—	—	—	—	—
Leith* ...	Mr. Thomas Bishop, Sanitary Inspector.	—	—	—	—	—	—	—	—	—	—
Greenock ...	Mr. J. Devine, Sanitary Inspector.	193	0.09	2.39	4.79	2.92	7.04	17.22	3.54	1.81	0.26
Paisley ...	Mr. W. W. Kelso, Sanitary Inspector.	194	0.33	3.80	4.83	6.20	9.29	24.45	3.18	3.29	0.21
Stirling ...	"	171	0.14	3.51	1.41	4.11	3.56	12.74	1.85	1.77	0.10

* No returns.

Col. 4 includes all matter insoluble in water but soluble in CS₂. Col. 5 includes all combustible matter insoluble in water and in CS₂. Col. 6 includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (a) Approx. 91b. per acre; (b) 2.56 English tons per sq. mile; (c) one gramme per sq. metre; (d) 1/1000 millimetre of rainfall (see Col. 3).

The analytical work involved in these returns was undertaken respectively by J. F. Liversidge, F.I.C., Birmingham; Harry Hurst, B.Sc., F.I.C., Bolton; F. Southerden, B.Sc., F.I.C., Exeter; A. R. Tankard, F.I.C., Kingston-upon-Hull; W. H. Roberts, M.Sc., F.I.C., Liverpool; S. A. Vasey, F.I.C., Director, THE LANCET Laboratory (London Meteorological Office collections); J. H. Coste, F.I.C. (Embankment Gardens, Finsbury Park, Ravenscourt Park, Southwark Park, Wandsworth Common, Victoria Park collections), London; F. L. Teed, D.Sc., Golden-lane, London, E.C.; C. C. Duncan, F.I.C., Malvern; E. Knecht, Ph.D., M.Sc., Cheadle, Davyhulme, Fallowfield, School of Technology, University, Whitefield (Manchester collections); J. J. Dunn, D.Sc., Newcastle-on-Tyne; Professor W. P. Wynne, Attercliffe Burial Ground, Hillsborough Park, Meersbrook Park, Weston Park (Sheffield collections); S. H. Davies, M.Sc., York; J. W. Biggart, F.I.C., Greenock; A. Scott Dodd, B.Sc., F.I.C., and R. M. Clark, B.Sc., Leith and Paisley respectively; Messrs. R. B. Tatlock and Thomson, Coatbridge. The correspondents referred to in col. 2 are for the most part public health authorities.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

ANTISEPTIC PASTE.

(MESSRS. CHAS. ZIMMERMANN AND CO. (CHEMICALS), LIMITED,
9 AND 10, ST. MARY-AT-HILL, LONDON, E.C.)

Sir Watson Cheyne in his Hunterian oration before the Royal College of Surgeons of England, which was published in our columns of Feb. 27th, referred to the use of phenol pastes in the treatment of wounds in war. We have received from the above firm a sample of the paste made to some extent on the lines there suggested. It contains 25 per cent. of pure cresols combined with a bland non-irritant base. It is of medium consistency, and is conveniently used from a collapsible tube. Of course, the percentage of active antiseptic can be varied, while also the consistence of the medium can be made firmer or thinner according to requirements. In our analysis we succeeded in isolating just 25 per cent. of cresols, the amount which is claimed to be present.

AQUAPERIA.

(CAMWAL, LIMITED, 112, PEMBROKE-ROAD, CALEDONIAN-ROAD,
LONDON, N.)

This aperient water is introduced to take the place of the foreign natural bitter waters now stopped from coming into this country. According to our analysis it contains chiefly the sulphates of magnesium and sodium together with some common salt and carbonate of soda. The quantities were as follows, representing grammes per litre: magnesium sulphate, 15.75; sodium sulphate, 12.40; sodium chloride, 2.34; and sodium carbonate, 1.06, giving a total of saline contents of 31.55 grammes per litre. The water in which the salts are dissolved is drawn from a natural spring at Harrogate. The constituents are well balanced in accordance with therapeutic requirements.

SPECIAL SCOTCH WHISKY.

(MESSRS. CHARLES TUCKEY AND CO., 3, MINCING-LANE,
LONDON, E.C.)

The analysis of this well-matured spirit was as follows: alcohol by volume, 46.59 per cent.; extractives, 0.28 per cent.; mineral matter, 0.01 per cent.; acidity reckoned as acetic acid, 0.02 per cent. The secondary products present in 100,000 parts of absolute alcohol were as follows: ethers, 49; aldehydes, 43; furfural, 3; and higher alcohols, 200. These results are in conformity with the statement as to the age of the spirit being 10 years. It is smooth to the palate and mild in flavour. Its colour is somewhat high due to storage in wood. It is well adapted for dietetic purposes owing to its purity and quality.

ADRENALIN SOLUTION.

(MESSRS. BURROUGHS, WELLCOME, AND CO., LIMITED, SNOW
HILL BUILDINGS, LONDON, E.C.)

Adrenalin is now an official preparation of the Pharmacopœia, and it is satisfactory that this important product is being manufactured in this country. The "Wellcome" brand solution of adrenalin B.P. conforms to the requirements of the Pharmacopœia and in addition it is physiologically standardised. Each bottle contains 10 c.c. of a 1 per 1000 solution of the crystalline active principle of the suprarenal gland.

LYSOL.

(MESSRS. EVANS, GADD, AND CO., 100, FORE-STREET, EXETER.)

A chemical examination of this fluid soon disclosed the use of high quality materials. On removing the soap by means of caustic soda and calcium chloride a practically colourless filtrate was obtained containing the tar acid. On acidifying this filtrate the tar acids were liberated, and they were of a pale brown colour. In many similar preparations we have examined the phenols employed are generally quite dark in colour. The separated tar acids measured exactly one-half the volume of the lysol. The preparation is limpid and mixes with all proportions of water to a clear bright fluid. It is detergent as well as powerfully antiseptic.

VEGETABLE AND MEAT EXTRACT.

(MESSRS. GEORGE MASON AND CO., CHELSEA WORKS, WALHAM
GREEN, LONDON, S.W.)

This preparation has all the appearance and consistence of a meat extract, but it is composed chiefly of soluble vegetable materials. Moreover, it has the pleasant attractive flavour of meat extract and similar appetising qualities. It contains, however, nearly half its weight of salt. Analysis gave the following results: moisture, 13.70 per cent.; mineral matter, 50.00 per cent., containing 48.10 per cent. sodium chloride; total nitrogen, 3.84 per cent.; proteins precipitated by bromine, 2.05 per cent.; other nitrogenous matters, 19.55 per cent.; extractives soluble in alcohol, 12.70 per cent. The preparation affords a stimulating "tea" and as an adjunct fills a useful place in the sick dietary.

SPARKLING MUSCATEL (GOLDEN GUINEA).

(MESSRS. H. N. GILBEY AND CO., 15, CHARLOTTE-STREET,
FITZROY-SQUARE, LONDON, W.)

This is a pleasing French sparkling wine with the well-known muscatel flavour. On analysis the following results were obtained: alcohol by volume, 11.17 per cent.; extractives, 5.42 per cent.; sugar, 3.57 per cent.; mineral matter, 0.17 per cent.; volatile acidity reckoned as acetic acid, 0.14 per cent.; and fixed acidity calculated as tartaric acid, 0.88 per cent. The wine may be described as moderately dry; it has an agreeable delicate flavour, and for some purposes may well replace the more expensive champagne.

A VETERAN PRACTITIONER.—Mr. Daniel Carmichael, F.R.C.S. Edin., L.R.C.P. Edin., one of the oldest medical practitioners in Gosforth, Newcastle-on-Tyne, has recently died. He qualified in 1859, and was the first medical officer of health appointed by the Bedlington Council.

ZYMOTIC DISEASES IN BELFAST.—At a meeting of the city corporation of Belfast, held on March 1st, it was stated that between Jan. 17th and Feb. 13th—the period under review—184 cases of scarlet fever, 4 of enteric fever, 1 of simple continued fever, 1 of puerperal fever, 15 of diphtheria, 1 of membranous croup, and 18 of erysipelas had been notified. The death-rate from all causes was 22.6, that from zymotic diseases 1.7, and that from chest diseases 8.6 per 1000. There were 224 cases of infectious diseases notified. Reference was made at the meeting to a report of Dr. A. G. Robb on Purdysburn Fever Hospital, in which he showed that, with the exception of the fever hospital in Sheffield, there was not a hospital in the three kingdoms where the average cost of maintenance was as low as at Purdysburn. Return cases of scarlet fever at Purdysburn were very much lower than the average of return cases in other fever hospitals. Cross infection was due to patients being admitted with one disease who were at the same time in the incubation stage of some other disease.

THE LANCET.

LONDON: SATURDAY, MARCH 20, 1915.

A Plea for Consideration.

THE public at large, whose opinion is expressed at least as much as it is guided by the daily journals, is beginning to recognise that the medical profession has a very severe strain placed upon it by the conditions of war, and to perceive that some consideration may justly be claimed by its members when shortage of numbers prevents them from dealing satisfactorily with temporary or local over-pressure of work. In a letter to the local press of Newcastle, Mr. D. RANKEN has put the case with great clearness in terms applicable to many other localities. Elsewhere, as well as at Newcastle, the ranks of the local medical profession have been depleted by the call which civilian practitioners have obeyed to serve their country in the navy or army; local increase or diminution of working population has taken place owing to the presence or absence of works for the manufacture of war material; and in hundreds of thousands men have gone to join the colours, leaving their families behind them. In these circumstances the medical men who are left are working under new conditions, and have to get their work done somehow, or be blamed for neglect, although, as we must point out, many of those still in civil practice have had to remember increasing years and growing unfitness for strenuous exertion, or they would not have remained where they are. In the letter referred to Mr. RANKEN makes practical suggestions. He asks the public to call as seldom as possible upon medical men at untimely hours, to make their requests for visits before the medical man has started on his daily round, and to avoid calling him out at night and on Sundays except in cases of extreme urgency. These very simple demands upon the forbearance of patients and their friends are endorsed by the *Newcastle Journal* in a sympathetic editorial article, which treats them as entirely reasonable, and points out that they affect "not only the interests of the hard-worked doctors but the best interests of the civil population as well." It is in this spirit that we hope to see a difficult and trying state of affairs met during the months that now lie before us, when the pressure of work is likely to increase rather than to diminish, while the number of hands available to deal with it will not be augmented in any adequate degree.

The extent of the dislocation of medical practice throughout the country and the various ways in which that dislocation shows itself can readily be appreciated by those who have read the various

articles by our Special Commissioner upon local conditions of practice. War has suddenly created, practically throughout Europe and beyond its borders, a demand for the services of the surgeon and physician wholly without parallel in history, and it is not alone in the supply of munitions of war to her allies that our country is drawing upon her resources beyond what is necessary for her own immediate needs. But the change thus wrought with startling suddenness has not been confined to the diminution of the number of practitioners serving the civil population. A simple general increase of work would have been an easier matter to cope with than the changes of various kinds best perhaps described by the word dislocation. In its most general aspect the war has greatly impoverished in many places large sections of the population among which the local practitioners have been in the habit of finding their most paying patients; on the other hand, there are sections of the population in the same localities or in others which have become more prosperous than they were under normal peace conditions. This, however, does not necessarily mean that the loss and gain to the medical man balance one another. Many of those who have profited are unlikely to admit having done so, and the generous willingness of the civil practitioner to attend the dependents of men serving with the colours, where these are in necessitous circumstances, has in many cases involved them in giving free treatment to women and children who are better off than when the head of the family was at home. Again, demand is made for free medical treatment of the troops in towns where these are billeted upon the townsfolk without due provision being made for their liability to sickness. These sudden influxes of population, whether in the form of military units or of additions to the working-class population, imply a diminished number of inhabitants in other localities and a corresponding loss to former medical practitioners, while not as a rule benefiting the medical men in the new localities.

The conditions affecting the medical profession, of which the above may be taken as examples, are, as has been pointed out, conditions of dislocation, of temporary derangement, and of inconvenience. The public is affected and is no less interested than the medical profession in procuring the smoothest possible working for the machinery by which its health is protected, and recourse must be had everywhere to patience, mutual forbearance, and that readiness to give and take which makes matters go smoothly where men and women have to combine in circumstances of difficulty and stress. That such mutual forbearance as we have indicated will be evinced we feel confident, and we express the hope that the need for it will make an impression upon the public mind which will remain when war is over and peace once more restored. The difficulties which may arise will

generally be due to a "shortage" of medical practitioners. We invite the public to remember that shortage, and to consider the causes out of which it has arisen. It has shown itself recently in an inadequate supply of medical men to fill the minor appointments constantly offered to the junior members of the profession. The supply was found to have become inadequate when the Insurance Act promised in some industrial districts better prospects in private practice than had prevailed before, and the demands made by the war have accentuated the deficiency.

Epidemic Cerebro-spinal Meningitis.

THE special debate on the epidemiology of cerebro-spinal meningitis, which took place on Feb. 26th and March 5th in the Section of Epidemiology and State Medicine of the Royal Society of Medicine, proved of the greatest topical interest, for discussion among those who are able to speak with some authority on this subject should allay growing apprehension on the part of the public, while stimulating scientific interest, if such stimulus was needed, in the problems presented by one of the most remarkable of our epidemic visitations. And the problems are many. The extent to which cerebro-spinal meningitis has prevailed among us in the past is really not certain, and it is probable that many outbreaks have gone undiagnosed in various parts of the world, even since our pathology has recognised the disease as an entity. We know that there have been severe epidemics in France, Germany, Italy, and some parts of the United Kingdom in recent times, but whereas the disease was identified more than 100 years ago, it is only in the present century that any close scientific study of it has been forthcoming on the basis of the systematic search for the meningococcus, now recognised as the invariable concomitant, if not the principal causative agent of the disease. The result has possibly been to produce an impression of increasing public danger from this source which would not be warranted by the facts, if they were clear to us. The threat which any dangerous infection may offer to our soldiers aggregated in camps necessarily increases such an impression, and it is well known that during the last four months there have been outbreaks in several home camps; and camps, however hygienically contrived and scientifically run, must sometimes present, particularly in bad weather, conditions favouring the spread of any infection. Were it not for this fact the enormous amount of care which is expended over medical organisation would be wasted, for, apart from the special risks of concentration, a camp, it must be remembered, is a healthy community consisting, for the most part, of selected men in the prime of life, discharging arduous duties, but freed alike from any of the perils of the crowded town and relieved from the day to day anxiety of pecuniary struggle.

Infectious disease in camps loses a part of its grave dangers because of the favoured personnel, but apart from the purely military point of view there always remains the circumstance that an epidemic, even if its morbidity be slight, deprives the army of valuable material, while such a disease as cerebro-spinal meningitis, where the mortality is high, is a particular source of anxiety. From the debate at the Royal Society of Medicine a great deal of interesting information was obtained, all, however, pointing to a certain obscurity in the pathology and in the methods of spread, and all emphasising the difficulty of diagnosis, making it necessary that those in charge of the health of closely packed communities must be especially on their guard against insidious and possibly unsuspected danger. Cerebro-spinal meningitis is ordinarily a disease of sporadic occurrence in this country, scattered widely over the population, though exceptionally occurring in groups. Even in definite epidemics, such as that which affected Glasgow in 1907, it has seldom seemed to be directly infectious from case to case in the way in which measles or scarlet fever, for example, is infectious. Dr. A. K. CHALMERS pointed out, however, that the incidence in Glasgow was greater in the parts of the town which were most crowded and had the highest mortality from all causes. Several speakers adopted the view that in regard to its infectivity and prevalence the meningococcus was more closely allied to the diphtheria bacillus or even to the pneumococcus than to the organisms producing acute catarrhal infections. Sir WILLIAM OSLER, in reviewing the epidemiological features of the disease, alluded to its usual low rate of morbidity, and emphasised the important part played by the carrier in the spread of this disease, and also discussed the variability of the meningococcus intracellularis meningitidis. Since the discovery of this organism by WEICHSELBAUM in 1887 subsequent researches have confirmed the view that it is the cause of the disease; but serological studies and the differing results of treatment by specific serums all tend to show that various strains of this organism exist, to one of which the name of parameningococcus has been applied. Dr. J. C. G. LEDINGHAM, whose remarks we published in full last week, briefly reviewed some of the chief cultural and serological characters of the meningococcus. He pointed out that in regard to the identification of the organism from the throats of carriers the criteria employed have not always been of uniformly strict character, and that this fact may account for the variation in recorded statistics. It seems, however, to be quite clear that the carrier plays a very important part in the development and spread of the disease, and it is to be hoped that the present epidemic may result in some increase in our knowledge of this problem of the carrier and in the evolution of means for dealing with it satisfactorily. Certain statistics appear to show that in most

cases of convalescents from the disease the meningococci can no longer be found in the naso-pharynx after three weeks, but it is also probable that a few cases of chronic carriage of the organism occur. It is, however, not the convalescent carriers, but the healthy carriers who seem to play the most important part in the spread of the disease, since they are not detected unless systematically looked for, and they are sometimes very numerous, far exceeding the number of cases of the disease. In other words, each case of the disease may be the origin of a large number of healthy carriers who may serve to spread the disease widely and may be the means by which fresh outbreaks of the disease originate. Dr. LEDINGHAM even suggested that the chronic carrier with a zone of carriers around him may act as the connexion between one epidemic and the next.

Dr. J. A. ARKWRIGHT brought forward evidence against the view that meningitis as such was spread from one patient to another, mentioning that in one epidemic where nearly 2000 houses were implicated, under 7 per cent. of the houses furnished more than one case of the disease. Such an observation clearly supports the hypothesis of carriage of the germ by subjects themselves unaffected by its presence. When the organism is transported for long distances it can be disseminated in any of the usual manners which close contact suggests. The speakers were not in agreement as to the extent of the present prevalence. Professor JOHN ROBERTSON, medical officer of health of Birmingham, thought we were now in the presence of a widespread epidemic, and pointed out that where soldiers were billeted in poor quarters they ran more risk. The War Office has already acknowledged the justice of this view, and Mr. H. J. TENNANT, in the House of Commons on Monday last, stated that special instructions had been issued to all commands to ensure that the troops are not overcrowded in insanitary dwellings. Dr. W. H. HAMER, medical officer to the London County Council, doubted whether the increase of deaths from cerebro-spinal fever had been very great, obviously alluding to the difficulties of diagnosis. He showed that the increase of cases of cerebro-spinal meningitis corresponded with an increase of deaths from bronchitis, pneumonia, and influenza, suggesting that the prevalence of acute catarrhal conditions was an important causative factor. Other aspects of the disease were considered by various speakers with a view to giving some general guidance as to the duration of the incubation period, the diagnosis, and the treatment. Dr. W. D'ESTE EMERY made the interesting observation that the discrimination between the meningococcus and the gonococcus was often a matter of some importance, since gonococcal meningitis did occur, though rarely. He thought, however, that mixed or secondary infections of the meninges were very unusual. This observer thought that

the death-rate had been exaggerated owing to mild and non-fatal cases being missed, pointing out that where systematic lumbar punctures were done in children's hospitals cases of meningitis were found not infrequently which ran a mild course, and which in the absence of modern methods of diagnosis would have been regarded as rheumatism or bronchitis.

It is probable that systematic study of the results of treatment in the present outbreak will produce an advance in our knowledge of the effects of serums. Some excellent results are on record from the use of Flexner's serum, while in other instances it has not proved effective. The results of the use of polyvalent serums, and of other serums prepared in this country, will be awaited with great interest and should throw further light upon the bacteriology and epidemiology of the disease. A satisfactory solution of the carrier problem has yet to be reached, but here again we may expect that valuable experience will be gained if records are kept and subsequently published. It is well to emphasise that the precautions which are being taken with the troops have been very carefully thought out by the Army Medical Department with a view to cutting infection short in the most rapid manner. The degree to which this is possible in civil life is doubtful, but under military conditions the problem is more under control. All cases of unaccountable headache, of apparent ptomaine poisoning, and of vomiting, with or without rise of temperature or pulse, as well as all cerebral cases, are isolated and notified. When the patient is diagnosed to be suffering from epidemic cerebro-spinal meningitis he is immediately sent to the isolation hospital, and not only his bedding but that of all his immediate neighbours is destroyed, and their blankets and clothing sent for disinfection. All the men sharing his room or hut are isolated from the first and kept under special observation for signs of the disease, swabs being taken from them by an officer deputed for the purpose. Not until these swabs prove to be negative is the house or hut pronounced free from infection, until when no man in it is allowed to return to duty. The isolation is real, for the men are drilled and paraded apart from the rest of their unit, and no direct inter-communication is allowed between them and the cookhouse, while all feeding utensils are swilled out with boiling water, and every man uses his own cups and plates. All waste matter is immediately destroyed by fire, special latrine arrangements are made for the use of contacts, and the systematic destruction of lice and fleas is undertaken, while samples of vermin are collected alive for investigation. Further, there is provision made for the isolation of carriers, through whose instrumentality, it seems certain, some of the outbreaks have arisen. The energetic action of the medical department is much to be commended, and forms one of the proofs that the eulogy recently pronounced upon the department by Lord KITCHENER was well deserved.

Annotations.

"Ne quid nimis."

"BACK TO LISTER."

UNDER this heading, which as he informed his audience was suggested to him by Sir James Crichton-Browne, Sir Rickman Godlee delivered a bright and timely discourse at the Royal Institution on Friday in last week. He made no attempt to trace the various steps by which Lister was led to his conclusions about the cause of suppuration, and refused to harrow the feelings of an audience, which was of course only partly medical in composition, with the usual lurid pictures of hospital conditions before the introduction of the antiseptic system. He began the great story of the growth and development of modern surgery at the point where Lister, a highly equipped man of science and a linguist, as well as a most observant and successful clinician, perceived that in Pasteur's discoveries the solution should lie of some of the terrible problems which then beset hospital surgery. It was a commonly accepted deduction, drawn by noting the difference in the behaviour of fractures with unbroken skin from that of compound fractures, that the air had a morbid influence. The discoveries of Pasteur showed that: 1. Putrefaction is a species of fermentation. 2. It is caused by the growth of micro-organisms and does not occur independently of them. 3. The micro-organisms that produce fermentation and putrefaction are conveyed by the air on the dust that floats in it. 4. These micro-organisms can be destroyed by heat and other agencies or separated by filtration. 5. Certain recognisable organisms produce definite and distinct fermentative processes. 6. All of these organisms require oxygen. Some of them flourish in the presence of free oxygen (aerobic), others only in its absence (anaerobic). The latter acquire their oxygen from the bodies which, by their growth, they are causing to ferment or putrefy. 7. Many natural animal and vegetable products have no tendency to ferment or putrefy even in the presence of oxygen if collected with proper precautions and kept in sterilised vessels. 8. Spontaneous generation has never been observed to occur. Pasteur's work, said Sir Rickman Godlee in thus summarising its teaching, presented Lister with two great fundamental facts: (1) That putrefaction is caused by germs which can be destroyed by heat and chemicals, and separated by filtration; (2) that germs are carried by the dust in the air, and in 1865 the problem seemed to be to kill the germs which might have gained access to the wound before it came under treatment, and to prevent the air from carrying in others afterwards. Lister first applied what he called the antiseptic principle to compound fractures, the cases of which were particularly liable to be followed by the hospital plagues of pyæmia, erysipelas, and hospital gangrene. In the early stage of his work he used a very strong antiseptic and did his best absolutely to exclude the air, and his results were strikingly good, said Sir Rickman Godlee, in spite of the fact that the undiluted acid did actually cause a certain amount of superficial sloughing or death of the tissues. He then explained to his hearers how, as time went on, Lister introduced the spray in order to deal more effectually with the air, and reviewed the circumstances which led to the adoption of

the procedure, and later to its abandonment, this part of the lecture being particularly valuable for delivery to a lay audience, as those few people who are still foolish enough to disbelieve in the discoveries of Lister usually state that he changed his methods of treatment so much that he could not be a trustworthy guide. As a matter of fact, Lister never changed his grand objects or his main methods, although he modified his technique as it became obvious that the air was a minor danger compared to the germs on the skin of the patient, the dirt on the hands of the surgeon, the unpurified sponge, or the badly cleaned instrument. Gradually he lessened the strength of his antiseptic solutions, being willing more and more to credit the normal tissues with the power of resisting invasion, and at this point in the story of Lister's work Sir Rickman Godlee dealt with the suggestion that there is a fundamental antagonism between the aseptic and antiseptic treatment. He found that the comparison between the two, which is so often made, is misleading, because most of the advocates of aseptic surgery use chemical antiseptics for one purpose or another, while all employ heat, a most powerful antiseptic, with freedom. The great difference between the aseptic and the antiseptic surgeon is that the former requires an amount of paraphernalia to carry out his procedures which puts them almost beyond the reach of any except hospital surgeons, and quite beyond that of surgeons with a fighting army. Sir Rickman Godlee read to his audience a letter from Sir Anthony Bowlby describing the conditions prevailing at the front, which sufficiently showed that aseptic practice would be too often useless. "In this trench warfare," said Sir Anthony Bowlby, "you must remember that, if a man is hit, he often falls into filthy mud and water, which may be three feet deep or more. Remember also that the trench is only 2½ feet wide. *If it is night*, you can only grope about in the dark and can do no dressing of any kind, for you can't even get any clothes off in the dark, and in so cramped a space, and you must try to get the man away to a 'dressing station' half a mile distant, and thence to a field ambulance. *If it is daylight*, you can't get the man out of the trench at all, and he may have to be kept there for many hours, because he would certainly be killed if he was got out of the trench. And the water in the trenches is hopelessly polluted and soaks his clothes and his wound. It is only too evident that large lacerated wounds, and especially bad bone smashes, are so contaminated that it can never be possible to render them aseptic." There is clearly not much room for strict aseptic surgery at the front, and Sir Rickman Godlee closed his interesting address by saying pithily, "The only way to stop sepsis in war is to stop war altogether."

THE FREEZING POINT OF WATERED MILK.

Dr. G. W. Monier-Williams has undertaken for the Local Government Board an investigation into the freezing points of a considerable number of milks known to be of natural unaltered composition, with the object of ascertaining whether the freezing point is capable of being used with any advantage in guarding the quality of the milk-supply, and whether the indications afforded by it are more accurate than those obtained by the well-known chemical methods of examining milk already in use. His conclusions appear in a report issued by the Local Government Board this week. He

found that the average freezing point of 141 samples of genuine milk was -0.5345°C ., the values ranging from -0.558°C . to -0.514°C . The freezing point, he observes, appears to be the most constant of any of the properties exhibited by genuine milk. Although unaffected by the removal of fat from or the addition of separated milk to genuine milk, the freezing point is raised by the addition of water to the milk. The determination of the freezing point may thus, in certain circumstances, be applied with advantage, as a confirmatory test, to the detection of added water and to the approximate estimation of the amount present. It is concluded, however, that owing to the experimental difficulties involved in obtaining reliable results it is somewhat doubtful whether the method is capable of general application for purposes of milk-control. The report presents, we think, for the first time the results of a detailed investigation made in this country on the freezing point of milk and its practical utility, but Dr. Monier-Williams states that this process has been used for some years in several continental laboratories.

FABISM.

In some parts of Sardinia cases not infrequently occur of acute febrile anæmia with jaundice and hæmoglobinuria, and are popularly supposed to be due to the eating of raw fresh beans, possibly also of cooked beans, a further attribution being to inhalation of the blossoms of the bean plant. The clinical picture presented by these cases is very characteristic and a rapidly fatal termination is far from uncommon. Dr. A. Gasbarrini in a recent issue of *Malaria e Malattie dei Paesi Caldi* gives details of 10 cases, and draws attention to the similarity of the symptoms with those of "icterohæmoglobinuric fever" described by Plehn. In a typical case there are rigors followed by high fever, vomiting and sense of oppression, marked anæmia, bloody urine, and distinct jaundice, which increases up to the third day. After this date in mild cases the fever and hæmoglobinuria disappear, a trace of albumin perhaps remains in the urine, the jaundice diminishes, and recovery takes place in about a week. In severe cases the fever is greater, profound and progressive hæmolytic supervenes, and death takes place on the fourth or fifth day. Dr. Gasbarrini, having established the fact that in none of his cases was there any evidence of malaria, as shown by the absence of plasmodia and a negative result with the Bordet-Gengou test carried out with malarial antigen, performed some experiments with a view to trace any connexion between the disease and the ingestion of beans, for these had been consumed in all his cases immediately prior to the onset of symptoms. An attempt to reproduce the morbid features of the disease in a convalescent patient by administering some of the fresh raw beans which had caused the death of a child failed completely. The same result happened in animals. On the other hand, in a rabbit the intravenous injection of serum obtained from one of the patients produced hæmoglobinuria, rapid deglobulisation, and leucocytosis, while in another rabbit the serum of a recovered patient was without any effect. This result is certainly interesting and deserving of further investigation. The results of these experiments do not, the observer admits, permit him to draw any conclusions as to the etiology and pathology of fabism. He uses this

appellation for convenience of description, but does not consider it justifiable for the moment to refer the disease to the ingestion of beans or to the inhalation of the perfume of the flowers—he does not even attempt to constitute fabism as a special morbid entity. —

DANGER OF THE CHOLERA CARRIER.

THE presence of cholera vibrios has been reported in the Calcutta water-supply underground reservoirs, and measures were at once taken to chlorinate the water. The matter was then further investigated, and on Feb. 13th, according to the Proceedings of the Calcutta Municipal General Committee, the bacteriological authorities again succeeded in isolating a true cholera virus from the samples supplied to them. The matter was serious, but as no explosive outbreak of cholera had taken place in Calcutta it seemed to the authorities that there might possibly be some mistake. Investigation showed that the samples had all been collected by a bearer who had long been in the employ of the bacteriological laboratory. This man had had an attack of cholera some years ago, but had not been a day off duty of late. There had also, as far as could be ascertained, been no case of cholera in his family. On the bearer being subjected, however, to close personal examination Major E. D. W. Greig, I.M.S., discovered that he was a regular cholera carrier. The investigation is not yet complete, but the health officer is inclined to think that the key to the mystery has been found. In his report on the case he adds that this bearer has not been permitted to take any more samples of water and has been excluded from the bacteriological laboratory, and all samples of water are now being collected by the assistant analyst and by the medical officer, Pulita. In future no samples will ordinarily be taken from Tallah, as it is undesirable to have a reservoir opened needlessly. Major Greig well deserved the thanks which he has received for his invaluable assistance in elucidating a difficult bacteriological problem. This case affords an instance of the constant watchfulness and extraordinary care necessary in public bacteriological work. —

THE SENSATIONS OF THE ALIMENTARY CANAL.

The *American Journal of Psychology* for January contains a paper by Mr. Edward G. Boring in which are recorded the results of a long series of experiments on himself and others bearing on the difficult question of the sensibility of the alimentary canal. Various methods were devised to elucidate the subject. Thermal, chemical, and electrical stimuli were applied to the œsophagus, stomach, rectum, and colon, and among the important findings obtained in this way reference may be made to the following. The œsophagus is sensitive to warm and to cold stimulation throughout its whole length. Extremes of heat and cold cause pain. The sensations of temperature originating in the œsophagus are often referred to the throat, while the pain sensations are sometimes localised in the head. Distension of the œsophagus by mechanical stimulation results in a pressure-pain sensation resembling that obtained by suitable methods (algometer) from skeletal muscles. Chemically it is sensitive to alcohol and hydrochloric acid, but not to oil of peppermint or mustard or pepper in suspension. As a rule, the reference of sensations arising in the œsophagus is either to the throat or

to the region below the sternum, and never to any point more than 1 centimetre from the mid-line. Mr. Boring is inclined to believe that this tendency to localise œsophageal sensations upon soft portions of the body suggests that these portions come by virtue of their mobility to be connected in experience with internal parts. It is at least as likely, however, that this reference to the throat and area below the sternum is *via* the segments of the cord from which pass the sensory stimuli from the œsophagus. In the case of the stomach, cold and warm stimuli produce the corresponding sensations, identical in quality with cutaneous cold and warmth. Extreme warmth gives rise to pain. Distension causes a sensation of pressure pain. Electrical stimulation produces the characteristic sensations. In all these instances it is difficult to exclude the participation of superficial tissues, particularly in the case of electrical stimulation. The rectum is probably insensitive both to warmth and cold; water at 60° C., however, evokes a sensation of pain. Distension of the rectum so inevitably arouses the call to defæcation that any specifically local sensations of pressure are masked. With increasing distension pressure pains in the abdomen and genitalia are set up. Both alcohol and hydrochloric acid give rise to sensations when brought in contact with the rectal mucosa, while oil of peppermint, pepper, and mustard do not. Hot and cold enemata do not produce thermal sensations in the colon; any sensation they produce is always one of pain. Distension of the colon causes pressure pain which cannot be attributed to the intestine itself.

DEW-PONDS OR MIST-PONDS.

THE permanency of the volume of water contained in the ponds on the high level of the downs compared with the failing supplies of the adjacent low-level hollows has long been an interesting topic for lay and scientific speculation. We have hoped always for some improbable or fantastic explanation of these interesting reservoirs, but it would appear from the researches of Mr. Edward A. Martin, F.G.S., on the subject that while it is true that a special condensation process is accountable for the maintenance of the dew-pond, yet this has its origin neither in peculiar differences of electric potential nor to any remarkable property of insulation possessed by the bed of the pond.¹ It is known that the source of the water is, at all events, not a geological one, and that the supply is derived from condensation from super-saturated air, but why the dew-pond should be a concentration point has not so far received a complete explanation. Some 14 years ago the formation of these ponds was under discussion, when the favourite view was that a difference of electric potential caused an attraction between the particles of moisture and the summit of the hill upon which the pond is situated. A simple experiment appeared to confirm this idea, for when two similar receptacles were placed in the neighbourhood of a dew-pond it was reported that there was a marked increase in the water connected to the earth by means of a conductor, while in the insulated basin the quantity collected was decidedly less. However, this explanation no longer holds good, for Mr. Martin appears to have established that the water of these elevated ponds is maintained by the peculiar condensation of mists over the surface of

the pond blown in from the sea, the term dew-pond being a misnomer, for which mist-pond should be substituted. Next to rain the chief sources of supply for the ponds are mist and fog, especially as regards those ponds which are at the very summit of the hills, where the condensation resulting from the altitude is greatest. Then it would appear that the quantity of sodium chloride in the ponds is large, and the particles of salt in the mist accelerate its precipitation and condensation. The downland fog, in other words, makes good the unequal relations existing between rainfall and evaporation in the summer months, and so the "dew-ponds" remain while the ponds in the valley dry up. The hint is plain to the stock farmer.

CHAULMOOGRA OIL IN THE TREATMENT OF LEPROSY.

Chaulmoogra oil for a number of years has been used in the treatment of leprosy with a certain amount of success, and cases showing improvement under this treatment have been recorded in our columns from time to time. In some cases, however, its continued administration by the mouth has been rendered impossible owing to the nausea and other disturbances of the system arising from its employment. Various other methods of using it have been tried, and among them hypodermic injections of the oil in combination with camphor and resorcin. Not long ago Dr. V. Heiser, Director of Health for the Philippine Islands, published accounts of apparent cure in four instances in which these injections of the oil had been used,¹ and in a special supplement to a recent number of the *United States Public Health Reports* he furnishes details, with numerous illustrations, of 9 more cases in which this method of treatment had been employed over a period of two years. Originally 12 cases began the injections together, but after a year three of the patients, though all of them had shown some evidence of improvement, declined to go on with the treatment. Dr. Heiser therefore confines his results to the remaining nine cases. One was apparently cured and was classed as "microscopically negative" as regards leprosy. In four others the disease had been arrested and had practically disappeared, three more had improved markedly, and in one the improvement was only slight. Thus all nine patients had been benefited by the treatment to a greater or less extent. The injections were given at weekly intervals in ascending doses, beginning with 1 c.c. As the toleration of the injections varies in different individuals, the dose must be regulated to prevent reactions of too violent a nature. At the same time hot baths, with 2 per cent. of sodium bicarbonate, were given, and it was found that those who took the baths regularly improved more quickly than those who did not take them. Dr. Heiser claims that this mode of treating leprosy gives more consistently favourable results than any other method that has hitherto come under his notice. It is, he says, equally efficacious in all forms of the disease. As the results reported seem to be very encouraging we should like to see the treatment tried on a more extensive scale, and we hope that other experts in affected areas will therefore give a fair trial to the hypodermic injection of chaulmoogra oil in combination with camphor and resorcin.

¹ Dew-Ponds, History, Observations, and Experiment. By Edward A. Martin, F.G.S. London: T. Werner Laurie. 1915. Pp. 608. Price 8s. 8d. net.

¹ THE LANCET, Sept. 27th, 1913, p. 946; March 7th, 1914, p. 695. In the last reference (p. 718) will also be found a letter dealing with true and false chaulmoogra oil.

THE TREATING OF SOLDIERS.

In the coroner's court at Eastbourne recently an inquest was held upon the body of a young soldier who had been handed over to the guard of his battalion at night by the police as "dead drunk." He had then been left by the guard to "sleep it off," and had been found dead in the morning. Evidence showed that the deceased, having already had more beer than was good for him, had asked some fishermen who had a bottle of whisky in their possession to allow him to drink from it, and that this had been followed by some sort of wager that he would finish the contents. Post-mortem examination revealed signs of recent acute alcoholism, and no signs of chronic alcoholism were present. A verdict of "Death from misadventure" was returned, comment being made by the coroner upon the cruel thoughtlessness shown by those treating soldiers, a course almost certain to bring the men into trouble. The suggestion was also made in the course of the case that men brought insensible to a guard-room should be seen by a medical man, whether believed to be drunk or not.

MIKULICZ'S DISEASE.

Mikulicz's disease may be described as a condition of bilateral chronic swelling of the lacrymal and salivary glands in an otherwise apparently healthy subject; it was first described in 1888. There are certain special features about these cases: the parotid glands especially are nearly always swollen—they are painless, smooth, and firm; often similar swelling involves also the submaxillary and sublingual glands. The lacrymal glands enlarge early. The liver and spleen are not increased in size. After a time the glands may subside and nothing more may happen. Such is an ordinary case. But many instances have now been reported, an interesting review of which is given by Dr. Thursfield in the *Quarterly Journal of Medicine* (1914, vol. vii., p. 237), in which there are definite blood changes as well. This at once opens up the question as to whether Mikulicz's disease can be allied to lymphatic leukaemia. But the blood whilst showing a marked relative excess of lymphocytes presents no total increase of leucocytes; there may be, in fact, a leucopenia; the spleen, too, is not usually enlarged, nor is there the general glandular hyperplasia frequently found in lymphatic leukaemia. In spite of these differences, however, the similarity in course of the disease—some of the Mikulicz's cases ending fatally, as do cases of lymphatic leukaemia—and the resemblances in the pathological findings in the two conditions when the blood is changed in character, make it probable that certain of the cases of so-called Mikulicz's disease are in reality closely allied to the true leukaemias. Certain cases presenting this peculiar distribution of glandular swellings may be due to other causes, such as tuberculosis, gout, and syphilis. For the rest no definite cause can yet be assigned. Mikulicz's disease must, in short, be regarded more as a syndrome presenting grouped symptoms but which owns widely varying causes.

Professor Henry Roy Dean, M.D., F.R.C.P., whose research work as professor of pathology at the University of Sheffield received Government recognition in a subsidy for its continuance, has been appointed professor of pathology and pathological anatomy at the University of Manchester.

THE FALLING BIRTH-RATE IN GERMANY.

(FROM A CORRESPONDENT.)

AT a meeting of the Deutscher Verein für Öffentliche Gesundheitspflege a paper was read recently by Herr M. von Gruber on the dangers threatening the German nation on account of the steady decline in the birth-rate. The lecturer discussed his subject from many points of view, illustrating his arguments with numerous statistics and tables. Without such aids, however, his message is perfectly clear. He says:—

Rapid Fall of Birth-rate in Germany.

It is common knowledge that the birth-rate in France has fallen much, but it is not generally realised how rapid and great has been the fall in the birth-rate in Germany during the last decades. This fall is shown in the following table, which refers to the number of marriages, births, and deaths for every 10,000 inhabitants at various dates since 1870:—

Year.	Number of marriages.	Births.	Deaths.
1870	77	401	290
1880	75	391	275
1890	80	370	256
1900	85	368	232
1905	81	340	208
1910	77	307	171
1911	78	295	182

This shows that though the number of marriages has practically not changed, the birth-rate has fallen by more than 25 per cent., and the mortality by 35 to 40 per cent., which fact accounts for the increase in the nation's surplus population. The fall in the birth-rate is, curiously enough, greatest in the hitherto so prolific Saxony, where it is more than 40 per cent. The fall is greatest in the towns and centres of industry, but it is also evident in the country districts, particularly in the neighbourhood of large towns. As a rule, the fall is greater and more rapid among Protestants than among Catholics, and it is greatest in communities which elect Social Democratic representatives. The fall is most striking in Berlin, where the birth-rate has diminished by a third within the last 30 years. Here the birth-rate is highest in the working-class districts, but even in these the fall is noticeable. It is beyond dispute that the lower classes in town and country have followed the example of the upper classes in the limitation of offspring. Berlin can no longer maintain its numbers by its own birth-rate: thus in 1912, 1000 women, whose ages ranged from 15 to 45 years, gave birth to only 73 living children, and this figure would have to be raised to 113 if the population of Berlin were to be kept up to its present level.

Alcoholism and Venereal Disease.—The Limited Family.

The fall in the birth-rate is largely due to alcoholism and venereal disease, both of which are on the increase. Venereal disease in particular is to blame. In 1910 it was estimated that in a very large sick-club in Berlin 4.9 per cent. of the women and nearly 9 per cent. of the men suffered from venereal disease. Lenz has even calculated that 90 per cent. of the men in Berlin have at some time been infected with syphilis. What, however, is most important is the dependence of the decline of the birth-rate on systematic prevention of conception. A table dealing with the fall of the birth-rate in Berlin shows that this fall applies particularly to the birth of children in families already possessing a child or two. In other words, the third and fourth child, not to mention later children, are becoming more and more scarce. In spite of all this, in the period 1901 to 1905 Germany had produced a surplus population representing 14.8 to the thousand. At this rate the population in 1950 should be about 118 millions, and at the end of this century 250 millions.

At this point von Gruber naively remarked that such a population need not be a source of alarm. "The others would have to make place for us!" He admitted, however, that this optimistic calculation did not take into account the fall in the birth-rate. He continued:—

The productive capacity of the German Empire will, at the end of this century, be lower than it is in France to-day. When

once Germany adopts the two-child system the methodical temperament of the nation will ensure its uniform practice and inevitable consequences. Particularly ominous is the low productivity of the most gifted. Cross breeding among the mentally well endowed is of great importance in the evolution of intellectual qualities, as is well illustrated by the Imperial House of Hohenzollern. Nothing is more important for the existence and welfare of a nation than a sufficient supply of gifted leaders; without such the mass of the people is helpless.

The causes leading to the voluntary limitation of the family are many. Recent advances in science, improving the conditions of life and prolonging it, are all to the good of the individual rather than of the community. Indeed, these interests are apt to clash, and owing to the present selfish individualism of man a course is often chosen which benefits the present generation at the cost of succeeding generations. The family is no longer an institution for the reproduction of the race; and the child's work and support of the family are progressively reduced by laws insisting on hygienic and educational measures and the limitation of child labour. Owing to insurance against old age and disease parents no longer feel the necessity for creating an offspring which shall keep them in their old age. Lack of house accommodation in the towns, the employment of girls in shops and factories instead of in domestic duties render the successful rearing of large families difficult. It has become a popular belief that large families are detrimental to the health of mother and children, but this is not the case when, for example, a family of ten children has been born within the space of 20 years. This popular superstition is given the lie by statistics dealing with the birth-rate and the infant mortality in the various parts of Prussia. Westphalia, for example, has a birth-rate more than twice as great as that of Berlin, yet the former can boast of a much smaller infant mortality, and there is practically no difference in the expectation of life of the mothers in these two districts. The higher standard existing for child welfare and education is also partly to blame, for when the poor see what advantages accrue to this higher standard they try to attain to it by reducing their offspring, and hope by this reduction to raise their children in the social scale.

The so-called emancipation of woman is incompatible with the duties of a mother. She no longer devotes herself to the needs of a large flock of children; she performs her duties as a mother in a most perfunctory way, and aims at being her husband's companion rather than the mother of his children. Among the æsthetic it has become usual to regard childbirth as a brutal and nauseating episode, and the child as a blur on the artistic home and as a nuisance in clubs or on journeys. Among the most sterile are the Jews of Berlin. Their numbers have, indeed, increased between 1875 and 1910 by 102 per cent., but during this period their birth-rate has diminished by 11 per cent., and it has now fallen to 14 per 1000. In other districts the Jewish birth-rate has even fallen as low as 12.9 per 1000. This fall is traceable to the Jewish love of wealth and power, and it shows that dire need is not responsible for it, for on the average the Jews of Berlin are much richer than the Protestants and Catholics.

Proposed Measures, including Government Subsidies.

In relief of the existing position von Gruber made certain suggestions in the following tentative way:—

An estimate of the fate awaiting a nation which methodically adopts the two-child system shows that a population of a million with a yearly birth-rate of 19.8 to the thousand must after 15 years have dwindled to 918,400, after 50 years to 676,938, and after 100 years to 347,075. Ultimately the wealth of the individual would suffer. At present, according to Prussian statistics, the income per head of the population is 260 marks. According to the above hypothetical calculation of the decline of the population, the income per head would have risen after 15 years to 283 marks, but after 50 years it would have fallen to 269, and after 100 years to 265 marks. It is not sufficient to rely on reducing the infant mortality, for even if this were brought as low as 7 per cent., to which figure only New Zealand and Norway

have attained, the gain thus effected would be practically neutralised by a further fall in the birth-rate of 2 per 1000.

It is therefore imperative that a reform should aim at encouraging fertility and removing the advantages at present associated with sterility. The substitution of polygamy for monogamy, the emancipation of woman, and the State supervision of the child are inferior to the old family system economically and from the point of view of race-hygiene and culture. The maintenance and education of children in public institutions would be twice as expensive as the present family system. Were the family tie dissolved and loose connexions substituted, venereal diseases would spread, the standard of parentage would be lowered, and the frequency of sterility would be increased. It is an insufficient inducement to give birth to a child that its mother is permitted to visit it every Sunday in some State institution. The family ties must, therefore, be strengthened, and the attempt to place the married and unmarried mother on an equal footing must be checked. The present popular vogue of honouring the unmarried mother has little to do with compassion for her fate or a misplaced fervour for the preservation of the race; it is rather an insidious attempt to raise the social status of the unmarried mother and thus sweep away a hindrance to loose connexions.

For the sake of large families housing accommodation should be improved, garden cities should be built, and cultivation of the land should be encouraged. The community as a whole should contribute so largely to the rearing of children that it would be practically as cheap to have a large as a small family. These contributions should be available for every class, from the lower to the upper middle; for it is deplorable that the most virile class to which officers belong should find it difficult to raise large families. The standard of fertility should be so high that each couple would breed 3.75 children, which after the necessary reductions would be equivalent to about three children living to the age of 14 years. Were the Government to subsidise with 200 marks a year every child in excess of the first two, Germany, with a population of 66.3 millions, would have to pay 840 million marks a year. This sum could be raised by progressive taxation of the unmarried, of the childless, and of families with few children. Taxes on luxuries could also be raised for this purpose. It must be admitted, however, that an evil such as the two-child system cannot be eradicated by legislation.

The message of the paper was that the German mental attitude requires revision, and a campaign should be conducted against narrow intellectualism, the cult of money and luxury, and the widespread selfishness which sacrifices the good of the State for the good of the individual.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on March 11th, Sir WATSON CHEYNE, the President, being in the chair.

The Council offered their hearty congratulations to Sir George H. Makins and Sir Anthony A. Bowlby on being made Knights Commander of the Most Distinguished Order of St. Michael and St. George, in recognition of their services as consulting surgeons to the British Expeditionary Force in France.

Mr. John Murray was introduced, and having made a declaration in the terms of the oath prescribed by the Charter of 1800 was admitted a member of the Court of Examiners.

It was resolved to issue Diplomas in Dental Surgery to 20 successful candidates. It was also resolved that University College, Cork, should be added to the list of dental hospitals and schools recognised by the College.

A report was read from Mr. C. H. Golding-Bird of the proceedings of the Central Midwives Board during the past year. The best thanks of the Council were given to him for his services as the representative of the College on the Central Midwives Board. Mr. Golding-Bird was re-elected to this post for another year.

Sir FREDERIC EVE reported the delivery of the Hunterian Oration by the President, Sir Watson Cheyne, on Feb. 15th. The President was thanked for his oration, and he was requested to publish it.

The PRESIDENT reported that with reference to the letter addressed by him to the Home Secretary regarding the difficulty of obtaining subjects for dissection, he had received a note from the Home Secretary acknowledging the receipt of the letter and stating that it will receive his consideration.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned has been granted a temporary commission as Surgeon in His Majesty's Fleet: Charles Denis Hanan.

The following appointments have been notified:—Staff-Surgeon: F. C. Robinson to the *Vivid*. Temporary Surgeons: H. Danvers to the *President*, additional, for Hospital Yacht *Queen Alexandra*; K. Wolferston to the *President*, additional, for Eastchurch Air Station; T. C. Blackwell to the *Victory*, additional, for R.N. Division, Blandford Camp; and D. A. Henderson to the *Pembroke*, for R.N. Barracks.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons: H. S. Reid to the *Victory*, for Royal Naval Barracks. Surgeon Probationers: D. B. S. Jones to the *Anglia*, G. Pearson to the *Larne*, and J. E. Purnes to the *Beaver*.

ARMY MEDICAL SERVICE.

Colonel Bruce M. Skinner, M.V.O., is retained on the Active List and to be supernumerary (dated April 5th).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Herbert J. M. Buist, D.S.O., to be local Colonel, whilst serving in South Africa (dated Jan. 1st). Edward Augustine Hanly to be temporary Lieutenant-Colonel (dated March 1st).

Captain Dennis Embleton, 3rd London General Hospital, Territorial Force, to be temporary Major (dated Nov. 20th, 1914).

Temporary Lieutenant Robert J. D'A. Irvine to be temporary Captain (dated March 16th).

Supernumerary Major Dudley S. Skelton is restored to the establishment (dated March 5th).

Hugh Winchworth Macnamara, late Fleet Surgeon, R.N., to be temporary Major (dated March 6th).

Harold Albert Kisch to be temporary Captain (dated Feb. 17th). Thomas Guy Macaulay Hine is granted temporarily the honorary rank of Captain (dated March 11th).

Lieutenant Thomas H. W. Idris relinquishes his temporary commission (dated March 1st).

Wilfred John Pearson is granted temporarily the honorary rank of Lieutenant. Temporary Lieutenants Harold M. Cory and Charles J. Thompson relinquish their commissions (dated Feb. 7th).

The undermentioned to be temporary Lieutenants:—Dated Feb. 17th: Bernard Wallace, Harold Ernest Gamlen, Edward Leslie Horsburgh, and Thomas Twistington Higgins. Dated Feb. 18th: George Barbour Macgregor, Thomas Lovett, Samuel Constantine Westwood, Alfred Merrin, Thomas Francis Griffin, Matthew Arnold Swan, Edward Shairp Barnard Eames, George Arthur Borthwick, Horace Lloyd Mann, Wilkinson Overend, Hubert Walter Ward, Maurice John Mottram, Donald Francis Shearer, Alexander Lewis Grant, John Fraser Steven, and Austin Charles Giles. Dated Feb. 19th: William Henry Anderson and John Ferguson. Dated Feb. 20th: Lawrence Henry Carr Birkbeck, John Edward O'Loughlin, Thomas James Simpson Moffett, Robert Charles Matson, Edwin Cecil Hardwicke, Hugh Atwood Beaver, and Charles Wilkinson Brecks. Dated Feb. 21st: John Humphrey James Victor Coats. Dated Feb. 22nd: Stephen Walter Coffin, Leonard Graham Brown, George Henry Fullarton Graves, Gerald Schofield, and Percy East Lones.

The undermentioned to be temporary Lieutenants whilst serving with the Red Cross Hospital, Netley:—Dated March 13th: Eric Lancelot Kingsley Sargent and Arthur Rawdon Carrington Dooley.

INDIAN MEDICAL SERVICE.

The King has approved the grant of the temporary rank of Lieutenant in the Indian Medical Service to the undermentioned: Dated Nov. 17th, 1914: Charles Stiebel. Dated Nov. 19th, 1914: Shripat Govind Ranaday. Dated Nov. 20th, 1914: Satyendra Nath Mukerji. Dated Nov. 23rd, 1914: Sakria Nath Chaudhuri, Devarayadray Venkatia Giri, and Jehangir Kaikhusro Nariman. Dated Nov. 24th, 1914: Richard Charles Palmer Berryman and Graham Colville Ramsay. Dated Nov. 30th, 1914: Kaikushru Bezonji Kanga.

Dated Dec. 1st, 1914: Girdhari Lal Batra, John Barré de Winton Moloney, and Behramji Pestonji Sahawala. Dated Dec. 2nd, 1914: Bindashwari Prasad, Satyendranath Roy, Jotindra Mohan Das Gupta, Maung Ba Yin, and Probodhchandra Banerjee. Dated Dec. 3rd, 1914: Thomas Henry Bishop. Dated Dec. 5th, 1914: Shivax Sorabji Banker and Ian Douglas Grant. Dated Dec. 8th, 1914: Kaikhusru Kersaspji Dadachanji, Phirozeshaw Jamshedji Kolaporewalla, Ambujnath Bose, and Sobha Ram Kapoor. Dated Dec. 14th, 1914: David Perceval Oliver, Codanda Madiiah Ganapathy, and Madan Gopal Bhandari.

TERRITORIAL FORCE.

Royal Army Medical Corps.

South-Eastern Mounted Brigade Field Ambulance: Edgar Milwyn Jenkins to be Lieutenant.

3rd London (City of London) Field Ambulance: John Howard Jones to be Captain, and to be appointed Acting Transport Officer. George Watters Greene to be Lieutenant.

2nd East Lancashire Field Ambulance: Lieutenant Frederick Jeeves to be Captain (temporary).

Sanitary Service: Captain Herbert E. Corbin to be Major (dated Feb. 17th). David Thomas Rocyn Jones to be Captain, whose services will be available on mobilisation (dated March 17th).

2nd South Midland Mounted Brigade Field Ambulance: To be Lieutenants: John Cecil Stoyte Dunn and Alexander Rodger.

1st Lowland Field Ambulance: Captain William C. Murray to be Major (temporary).

2nd West Riding Field Ambulance: Major Harold Collinson to be Lieutenant-Colonel (temporary).

Attached to Units other than Medical Units.—To be Majors: Charles Rosser Bishop (late Major, 4th Battalion, Prince Albert's (Somerset Light Infantry)) and Captain Ernest Solly. Major David L. Todd to be seconded. To be Captains: Surgeon-Captain George D. Kettlewell, from Devonshire Royal Garrison Artillery; and Charles Ranald Handfield-Jones (late Surgeon-Captain, 24th Middlesex Volunteer Rifle Corps). To be Lieutenants: Alexander Fraser Wilson, James McGavin Deuchars, Hugh Boyd Cunningham, and John Russell Brodie Russell.

ORDER OF ST. JOHN OF JERUSALEM.

The King has sanctioned the following promotions in and appointments to the Order of the Hospital of St. John of Jerusalem in England:—As Knights of Grace: Colonel W. J. Will, A.M.S. (N.Z.), Lieutenant-Colonel F. Marsh, R.A.M.C. (T.F.), and Dr. J. Lumsden.

THE GLAMORGAN RED CROSS GAZETTE.

The February issue contains much of interest to Red Cross workers, who will doubtless find plenty of work with the coming of spring and increased activity at the front. The Welsh Hospital, An Ambulance Train, Experiences in a French Hospital, The Functions of the Auxiliary Home Red Cross Hospital, and How We Prepared an Auxiliary Hospital are among the contents of this useful little publication.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 9033 births and 6863 deaths were registered during the week ended Saturday, March 13th. The annual rate of mortality in these towns, which had been 20.7, 20.4, and 20.2 per 1000 in the three preceding weeks, further fell in the week under notice to 19.7 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first ten weeks of the current quarter the mean annual death-rate in these towns averaged 19.5, against a corresponding rate of 20.3 per 1000 in London. The annual death-rate last week ranged from 8.0 in Ilford, 11.0 in Edmonton, 11.4 in Burnley, 11.7 in Croydon and in Hornsey, and 11.8 in Coventry to 26.7 in Carlisle, 26.9 in Northampton, 27.2 in Stockton-on-Tees, 28.0 in Cambridge, and 30.4 in Bath.

The 6863 deaths from all causes were 177 fewer than the number in the previous week, and included 657 which were referred to the principal epidemic diseases, against numbers increasing from 511 to 618 in the four preceding weeks. Of these 657 deaths, 373 resulted from measles, 120 from whooping-cough, 77 from infantile diarrhoeal diseases, 51 from diphtheria, 21 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.9 against 1.8 per 1000, in each of the two preceding weeks. The deaths attributed to measles, which had increased from 207 to 331 in the four preceding weeks, further rose to 373 last week, and caused the highest annual death-rates of 3.8 in West Bromwich, 4.1 in Smethwick, 4.3 in Merthyr Tydfil, 4.7 in Northampton,

4.9 in Wolverhampton, 5.3 in Grimsby, 6.3 in Cambridge, and 7.9 in Darlington. The deaths referred to whooping-cough, which had been 135, 111, and 110 in the three preceding weeks, rose to 120 last week; the highest death-rates from this disease were 1.8 in Merthyr Tydfil, 1.9 in Eastbourne, 2.1 in Bootle, 2.3 in Wigan, and 2.8 in Gillingham. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 80, 75, and 71 in the three preceding weeks, rose to 77 last week, and included 25 in London, and 4 each in Birmingham, Liverpool, and Leeds. The deaths attributed to diphtheria, which had been 80, 72, and 64 in the three preceding weeks, further declined to 51 last week, of which 6 were registered in London, 4 each in Birmingham, Liverpool, and Manchester, and 3 in Bolton. The deaths referred to scarlet fever, which had been 32, 38, and 32 in the three preceding weeks, further fell to 21 last week, and included 6 in London, 3 in Birmingham, and 2 each in Liverpool, Wigan, and Bradford. The fatal cases of enteric fever, which had been 17, 13, and 10 in the three preceding weeks, rose to 15 last week, and included 3 each in Stoke-on-Trent and Bradford.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5035 to 2943 in the 15 preceding weeks, had further decreased to 2850 on Saturday last; 275 new cases were admitted during the week, against 295, 302, and 298 in the three preceding weeks. These hospitals also contained on Saturday last 1556 cases of diphtheria, 261 of measles, 62 of enteric fever, 14 of whooping-cough, and 3 of small-pox. The 1795 deaths from all causes in London were 14 in excess of the number in the previous week, and corresponded to an annual death-rate of 20.7 per 1000. The deaths referred to diseases of the respiratory system, which had been 459, 476, and 468 in the three preceding weeks, further fell to 443 last week, but were 220 above the number registered in the corresponding week of last year. The deaths from influenza numbered 54, against 60, 83, and 48 in the three preceding weeks.

Of the 6863 deaths from all causes in the 96 towns 206 resulted from different forms of violence and 498 were the subject of coroners' inquests, while 1830 occurred in public institutions. The causes of 57, or 0.8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Leeds, Bristol, Bradford, and in 50 other smaller towns. Of the 57 uncertified causes, 11 were registered in Birmingham, 7 in Liverpool, 5 in Blackpool, 3 each in Stoke-on-Trent and Preston, and 2 each in Gillingham, Reading, Bootle, St. Helens, Southport, and Sheffield.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1266 births and 940 deaths were registered during the week ended Saturday, March 13th. The annual rate of mortality in these towns, which had been 22.8, 21.2, and 23.2 per 1000 in the three preceding weeks, fell to 20.9 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these towns averaged 22.7, against 19.5 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 10.2 in Kirkcaldy, 11.7 in Clydebank, and 15.5 in Kilmarnock to 24.3 in Falkirk, 25.3 in Leith, and 31.8 in Dundee.

The 940 deaths from all causes were 103 fewer than the number in the previous week, and included 131 which were referred to the principal epidemic diseases, against 131 and 145 in the two preceding weeks. Of these 131 deaths, 87 resulted from whooping-cough, 15 from measles, 13 from scarlet fever, 10 from diphtheria, 5 from infantile diarrhoeal diseases, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.9, against 1.9 per 1000 in the English towns. The deaths attributed to whooping-cough, which had been 97, 89, and 91 in the three preceding weeks, fell to 87 last week, and included 39 in Glasgow, 25 in Dundee, and 9 in Edinburgh. The deaths referred to measles, which had been 13, 8, and 21 in the three preceding weeks, fell to 15 last week, and comprised 9 in Dundee, 5 in Glasgow, and 1 in Paisley. The fatal cases of scarlet fever, which had been 10, 11, and 9 in the three preceding weeks, rose to 13 last week, of which 8 occurred in Glasgow. The deaths attributed to diphtheria, which had increased from 6 to 15 in the four preceding weeks, fell to 10 last week, and included 5 in Edinburgh and 2 in Glasgow. The deaths of infants (under 2 years) referred to diarrhoea and enteritis, which had declined from 16 to 7 in the five preceding weeks, further fell to 5 last week, and comprised 4 in Glasgow and 1 in Aberdeen. The fatal case of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 265, 235, and 264 in the three preceding weeks, fell to 215 in the week under notice, but were 78 above the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 23, against 34 in each of the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 692 births and 602 deaths were registered during the week ended Saturday, March 13th. The annual rate of mortality in these towns, which had been 26.5, 27.6, and 27.4 per 1000 in the three preceding weeks, fell to 25.9 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these towns averaged 26.0, against corresponding rates of 19.5 and 22.7 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 30.1 in Dublin (against 20.7 in London and 19.9 in Glasgow), 25.2 in Belfast, 25.8 in Cork, 15.2 in Londonderry, 14.9 in Limerick, and 9.5 in Waterford, while in the 21 smaller towns the mean death-rate was 25.3 per 1000.

The 602 deaths from all causes were 34 fewer than the number in the previous week, and included 37 which were referred to the principal epidemic diseases, against 38 and 36 in the two preceding weeks. Of these 37 deaths, 14 resulted from infantile diarrhoeal diseases, 12 from whooping-cough, 8 from measles, and 1 each from enteric fever, scarlet fever, and diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1.6, against corresponding rates of 1.9 and 2.9 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 10, 5, and 11 in the three preceding weeks, further rose to 14 last week, and included 7 in Dublin and 4 in Belfast. The deaths referred to whooping-cough, which had been 12, 18, and 10 in the three preceding weeks, rose to 12 last week, and comprised 6 in Belfast, 5 in Dublin, and 1 in Cork. The fatal cases of measles, which had been 6, 8, and 8 in the three preceding weeks, were again 8 last week, of which 6 occurred in Belfast. The death from enteric fever was recorded in Cork and those from scarlet fever and diphtheria in Dublin.

The deaths referred to diseases of the respiratory system, which had been 168, 187, and 188 in the three preceding weeks, fell to 167 in the week under notice. Of the 602 deaths from all causes, 179, or 30 per cent., occurred in public institutions, and 10 resulted from different forms of violence. The causes of 25, or 4.2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.8 per cent.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—

We are asked to state that hospitals in the County of London, or within nine miles of Charing Cross, desiring to participate in the grants made by this Fund for the year 1915 must make application before March 31st to the honorary secretaries, 7, Walbrook, E.C. Applications will also be considered from convalescent homes which are situated within the above boundaries, or which, being situated outside, take a large proportion of patients from London. Applications will also be considered from sanatoriums for consumption which take patients from London or which are prepared to place beds at the disposal of the Fund for the use of patients from London hospitals.

ROYAL DENTAL HOSPITAL, LEICESTER-SQUARE.—

At the fifty-seventh annual meeting of governors, held on March 11th, the Hon. Harry Lawson, M.P., a vice-president, being in the chair, the committee of management reported that 19,716 new patients had been treated during the year, their attendances being 55,104, the operations performed reaching the large total of 104,573; that the total amount received during the year was £8564 16s. 10d.; that the amount received from King Edward's Hospital Fund was £400; from the Hospital Sunday Fund, £141 15s.; and from the Hospital Saturday Fund £80 10s. A striking feature of the last half of the year's work had been the treatment of soldiers and recruits. The committee made an offer to the War Office, which was accepted, with the result that since the hospital reopened on Sept. 1st the total number of attendances exceeded 7000. The debt on the building is now £31,159 18s. 3d., and the yearly compulsory payments of principal and interest on the mortgage amount to £2400. The committee earnestly appeals for funds.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Midlothian Local Medical Committee.

THE third annual meeting of the Midlothian Local Medical Committee in connexion with the National Insurance Act was held at Edinburgh on March 11th. Dr. A. D. R. Thomson, for reasons of health, intimated his resignation as chairman. Dr. F. C. Fowler was elected chairman and Dr. T. D. Inch vice-chairman. The composition of the committee is the same as last year, with the substitution of Dr. C. W. Somerville in room of Dr. J. McG. Deuchars, resigned. Mr. J. Burnett Mackie was re-elected secretary. Dr. A. G. Robertson was elected to fill the vacancy in the representation of the committee on the Midlothian Insurance Committee in place of Dr. Thomson, resigned.

Edinburgh Royal Infirmary.

A meeting of the managers of the Royal Infirmary was held on March 8th, Lord Provost Inches presiding. It was reported that the patients in hospital at the last return numbered 883, and admitted during the last two weeks 493, making the total number treated 1376. The numbers dismissed cured were 299, relieved 134, otherwise 14, and died 32. The actual number of new cases treated during the past two weeks at the various out-patient departments were 1339, the majority of whom subsequently attended two or three times. In addition to these, there were 64 patients resident at the Convalescent House, Corstorphine. The following appointments for six months from April 1st were made:—Resident physicians: Dr. J. Roderick Bulmna (to Dr. Graham Brown), Dr. R. C. Rogers (to Dr. F. D. Boyd); resident surgeons: Dr. Henry J. C. Gibson (to Professor F. M. Caird), Mr. C. M. G. Elliott (to Mr. C. W. Cathcart), Dr. I. F. Longley (to Mr. D. Wallace), Dr. I. K. F. McLeod (to Professor H. A. Thomson), Dr. James B. Hogarth (to Mr. A. Miles), and Mr. W. Douglas Yuille (to Mr. N. T. Brewis); non-resident house physician: Mr. Maurice G. Hannay (to Dr. Norman Walker); clinical assistant: Mr. B. S. Raj (to Dr. Sim). Dr. C. W. MacGillivray recalled that an appeal to the citizens of Edinburgh had been made to provide beds in case of such an emergency as a naval raid. The naval raid, however, had not occurred, but four ladies who had promised beds had now presented them to the infirmary, so that they now had seven beds fully equipped through the generosity of these ladies.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

An Antigangrenous Serum.

ON March 1st Dr. Roux, Director of the Pasteur Institute, in the name of M. Weinberg, made a very interesting communication to the Académie des Sciences. Medical officers generally have noticed since the beginning of the war the large number of wounded who have been attacked with gaseous gangrene. This serious disease—manifested by a tissue emphysema crepitating under the finger and a rapid and intense development of the phenomena of decomposition—if it does not always cause death, in many cases necessitates amputation. Therapeutic procedures have been employed, some

of which have had happy effects, but their value has in nearly every case been disputed. The problem was to find a powerful therapeutic agent. Among the various bacteria which propagate in gangrenous wounds, and which have been classified, M. Weinberg has discovered a new bacillus. He had examined more than 50 gangrenous wounds and in all this bacillus was found. On cultivation and inoculation into guinea-pigs the bacillus developed rapidly, and the animals presented symptoms similar to those presented by patients with gaseous gangrene, and died therefrom. After several attempts he found a serum capable of destroying the activity of the bacillus. He injected the serum into a number of guinea-pigs, following this up with an injection of the gangrene bacillus. Into a control group the bacillus alone was injected. The latter animals died in 36 hours. The others soon recovered their health. When he injected the serum and the virus simultaneously the disease did not develop. When the serum was injected five hours after the injection of the virus the disease appeared, but the animal finally recovered. When injected 10 hours after the virus some of the animals recovered, others died, though considerably later than the controls which had received the virus alone. In the case of animals, therefore, this serum is clearly possessed of curative properties. A first trial gives ground for hoping that it will prove equally successful in man. M. Weinberg has injected a wounded man with a dose of 22 c.c. and an improvement has already taken place in his condition.

A School for Crippled Soldiers.

The French Government has decided on the establishment of a national school for soldiers crippled by injuries received in war. The school will contain all the necessary apparatus, so that after their medical and surgical treatment is finished they may undergo a course of functional re-education. This will be followed, when their physical condition permits them to work, by a suitable industrial education, thus providing the victims of the war with a means of livelihood. The institution will be installed in the vast and convenient buildings of the Maison de Santé de St. Maurice, in the Department of the Seine, which can accommodate from 600 to 700 inmates. Near it are extensive workshops, which will lend themselves admirably to the organisation of technical instruction for the crippled. The Government will carefully avoid prejudicing institutions on the same lines that have been created recently or are about to be created by private enterprise. On the contrary, the Government school should stimulate them.

Gunshot Wounds of the Thorax.

While many gunshot wounds of the thorax heal readily, the most minute precautions should always be taken to prevent certain after-mishaps. It is of the first importance to guard these patients against chill, for the wounded lung in the neighbourhood of a bullet track affords a ready focus for secondary traumatic pneumonia to complicate the condition. In regard to these cases M. Reynier recommends a long surveillance to protect them against all possibility of chill or fatigue. The surgeon, he says, should never be beguiled by appearances into discharging these patients prematurely, but should grant only convalescent leave for them to go to their families. With prolonged rest and proper nourishment the absorption of the blood effused by the

pleura is gradually accomplished. These wounds markedly lessen the patient's resistance, creating in him a state of organic debility that must be energetically combated. Such patients, in short, are really anæmics, and as such have need of a stimulating and upbuilding medication.

March 16th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Hospitals for the War.

THE Dean of the Medical Faculty of McGill University, Montreal, Dr. H. S. Birkett, is in command of the University of McGill Base Hospital and has drawn up the personnel, which has been provisionally approved by the Militia Department of Canada. Dr. H. B. Yates, the second in command, is Assistant Director of Medical Service for the Fourth Canadian Military Division and President of the Montreal branch of the Canadian Red Cross Society. Other officers will be Dr. J. M. Elder, Dr. John McCrae, Professor J. George Adami, Dr. W. H. P. Hill, Dr. E. W. Archibald, Dr. A. Howard Pirie, Dr. L. J. Rhea, Dr. W. G. Turner, Dr. G. P. Howard, Dr. H. M. Little, Dr. W. B. Howell, Dr. C. K. Russel, Dr. W. Hutchinson, Dr. J. C. Meakins, Dr. W. W. Francis, Dr. J. A. MacMillan, Dr. R. H. M. Malone, and Dr. L. H. McKim. Mr. Lewis L. Reford and Mr. Revere Osler, a son of Sir William Osler, are supernumeraries. Over a hundred medical students have volunteered to serve with the hospital, and although as yet no appeal has been made for funds numerous gifts have already been received.

The University of Toronto, through its Medical Faculty, is offering to supply a Base Hospital, which will be composed of 1040 beds. Should this offer be accepted it will be wholly recruited from the medical staff and the medical students of the University of Toronto, and will be got ready to send to England by April 1st for use as the War Department sees fit. The equipment of the hospital will mean that 450 students and lecturers and professors will be taken away from the work of the Medical Faculty, which, counting those already at the front, is materially reduced. The 84 nurses who would accompany the hospital, it is proposed, will be taken from the various hospitals in Toronto affiliated with the University.

New Sanitarium Offices.

The National Sanitarium Association of Canada has just opened fine new executive offices in Toronto. This has been made possible through the generosity of Mr. W. J. Gage, of Toronto, who contributed \$100,000 for the purpose, and who has been a pioneer in fighting tuberculosis throughout Canada. Since the campaign against tuberculosis was inaugurated in Ontario some 18 years ago the deaths in that province have decreased from 2800 to a little over 2000 annually. Toronto has the lowest death-rate from tuberculosis compared with any American city of 300,000 population. In connexion with this new building there are examination rooms for the tuberculous poor, rooms for the examination of private patients, headquarters for chief physicians, X ray room, a lecture-room, and a free dispensary. Mr. Gage has also given \$10,000 for scholarships in connexion with research work in tuberculosis.

Deaths in Ontario in 1913.

The number of deaths registered in Ontario in 1913 was 34,317, a ratio of 12·7 per 1000 of the population. This is an increase of 2167 over 1912. Typhoid fever and diphtheria are decreasing annually. The deaths from typhoid were 446; diphtheria, 339. The deaths from tuberculosis were 2294, being 85 per 100,000 of the population, a decrease of 2 per 100,000 since 1912. Of the total deaths in the province, 6·3 per cent. were from tuberculosis, a decrease of 0·7 per cent. over 1912. Of this number 36·7 per cent. took place in the cities, 7·4 per cent. in the towns; 55·9 per cent. took place in the rural municipalities. Pneumonia claimed 2076; infantile diarrhoea, 1993; Bright's disease, 1070; heart disease, 2829.

Toronto, Feb. 25th.

Obituary.

SIR GEORGE TURNER, M.B., D.P.H. CANTAB.,
L.R.C.P. LOND., M.R.C.S. ENG.,
LATE MEDICAL OFFICER OF HEALTH OF THE TRANSVAAL.

WE much regret to record the death of Sir George Turner, who, at the time of his knighthood on the King's own initiative in 1913, was by the *Times* aptly described as "Another Father Damien." His death occurred at his residence, Colyton, Devon, on March 12th, in his eightieth year.

Sir George Turner was educated at Cambridge University and at Guy's Hospital and qualified L.R.C.P. Lond., M.R.C.S. Eng. in 1872. Later he graduated at Cambridge in medicine, taking also the Diploma in Public Health. He was appointed medical officer of health and public analyst of the borough and port of Portsmouth, and physician to the Portsmouth Fever Hospital, which posts he relinquished in 1880 on being appointed medical officer of health of the Hertfordshire and Essex combined sanitary district. This post he occupied for some 15 years, and for the greater part of the period was lecturer on hygiene at Guy's Hospital and an examiner in public health to the Conjoint Board in London. In 1895 he entered the civil service of Cape Colony as medical officer of health, where his undoubted fitness for sanitary work soon became manifest in the improvement of the public health. Rinderpest, which at the time of his appointment was doing great damage among the cattle, was being investigated by Professor Koch. On the recall of the great German pathologist Dr. Turner continued the work and was appointed in 1897 to the charge of the Kimberley rinderpest station, where for five years he laboured assiduously to stamp out the disease. This he succeeded in doing, and his services must have saved Cape Colony an incalculable sum of money. The Cape Colony Government then decided to close the laboratory, but the serum produced there was so urgently needed in Rhodesia and Egypt that the work was continued for a time at the personal expense of Mr. Cecil Rhodes.

On the outbreak of the South African War Dr. Turner was seconded as sanitary adviser for service with Lord Roberts in the Transvaal, and supervised the military hospitals and concentration camps at a time when the ravages of typhoid fever were severe. At the close of the war, at the instance of Lord Milner, he was appointed medical officer of health of the Transvaal, when he found time among other activities vigorously to prosecute

the war against rinderpest. A serum factory was established at Dassport from which the serum was sold to Egypt and Natal with successful results. The work which Sir George Turner did for the public health of South Africa was important and of lasting value, but his name will always be associated with his labours in connexion with leprosy, to which disease he unfortunately fell a victim, though, save to those within his own private circle, the fact was not made public till within a few weeks of his name appearing in the list of New Year Honours in 1913. As medical superintendent of the Pretoria Leper Asylum he was brought into constant association with this most lamentable group of sufferers. In 1901 there were about 90 patients in the asylum, but his untiring labours on behalf of those suffering from the disease brought an ever-increasing number of patients under his care, and at the end of the seven years during which he was in charge the number had grown to 400. All his spare time was given to the alleviation of their sufferings, and the careful clinical study which he made of each case soon established him as an authority on the disease. It was hoped that an arrangement would be made with the Transvaal Government which would enable him to continue in his good work, but the authorities did not appear to see the necessity, and he retired from the post in 1908. On his return to this country he continued to prosecute his bacteriological studies, even after he knew that he had fallen a victim to the disease, hoping to advance our knowledge in the practical therapeutics.

Outside the medical profession few recognised the great services which Sir George Turner had rendered to humanity, but his work in South Africa, to those who impartially judge it, must always remain a lasting monument to his name. Sir George Turner was a widower and leaves four sons, one of whom graduated in medicine at Aberdeen University in 1897.

WILLIAM MORTIMER, M.D., C.M. ABERD.

Dr. William Mortimer, who died at his residence, Turriff, Aberdeenshire, on March 6th, at the ripe age of 82 years, entered on the study of medicine at Aberdeen in 1855. In the second year of his studentship he went for a voyage as surgeon on board a Greenland whaler, and on his return acted as assistant to two local medical practitioners in succession. Resuming his interrupted medical studies he graduated as M.D., C.M. at the University of Aberdeen in 1861, and almost immediately commenced to practise in Turriff, where he has since resided. Dr. Mortimer was particularly interested in the Volunteer movement, and for some 30 years was connected with the 2nd Volunteer Brigade of the Gordon Highlanders, from which he retired about 15 years ago with the rank of surgeon-lieutenant-colonel. He was joint medical officer to the old parochial board at Turriff, afterwards to the parish council, and medical officer of health to the burgh. He leaves a widow, a married daughter, and a son (who is now serving his country in the army) to mourn their loss.

CHARLES JOSEPH FAGAN, M.B., B.CH. DUB., SECRETARY TO THE PROVINCIAL BOARD OF HEALTH, BRITISH COLUMBIA.

Dr. Charles Joseph Fagan died at Esquimalt, Vancouver Island, on Feb. 10th, at the age of 57. He was born in county Westmeath, Ireland, and received

his education in Dublin, where he graduated at the University in 1883. He then went to British Columbia, where, after being superintendent of St. Mary's Hospital, New Westminster, he was, some 20 years ago, made medical officer of health of the province. He organised the sanitary service of the province very skilfully, paying particular attention to the prevention of tuberculosis, his special satisfaction being the establishment of the Provincial Sanatorium at Tranquille, on the mainland, in the dry belt, between the Coast Range and the Selkirk Mountains. He was also official analyst for the Province of British Columbia and registrar and secretary of the College of Physicians and Surgeons. The Premier, Sir Richard McBride, has characterised him as one of the most efficient servants who had ever been in the employ of the Government, and his death as a real loss.

GIUSEPPE RESINELLI,

PROFESSOR OF MIDWIFERY AND GYNÆCOLOGY IN THE INSTITUTE OF HIGHER STUDIES OF FLORENCE, AND DIRECTOR OF THE OBSTETRIC AND GYNÆCOLOGICAL CLINIC.

Professor Giuseppe Resinelli died on March 1st from an attack of acute pneumonia at the age of 49. He was born at Lecco in 1865, took his degree at Pavia in 1890, and his "libera docenza" in obstetrics and gynæcology in 1895. In 1901 he was director of the Foundling Institute at Ferrara, in 1902 he became professor at Cagliari, and in 1903 professor at Parma. In 1906 he succeeded Professor Pestalozza at Florence. He was an indefatigable worker, a clear thinker, a sound teacher, and a brilliant operator, and beyond all these a man of the widest culture and sympathies. Scientifically he will be best remembered by his writings on chorion-epithelioma. In Florence his memory will rest securely on the gratitude of his patients and students. A man of the simplest tastes, money made no appeal to him personally. Generous to a fault, he never hesitated to sacrifice his own well-being whenever he could be of help, and wore himself out in the service of others. His early death robbed him of the wider professional reputation which would certainly have been his, and deprived Italy of a son who would have brought her further honour in the world of science.

THE NEW HOSPITAL FOR WOMEN.—The annual meeting of the governors of this hospital took place on March 11th, when the Duchess of Marlborough presided. The annual report showed an increase of 307 in the number of in-patients treated during 1914, as compared with the number for 1913. This was shown to be due to the opening, in August, 1913, of the Rosa Morison House of Recovery at New Barnet. Lady Jellicoe, Mr. Stephen Paget, the Rev. Percy Dearmer, and Dr. Louisa Garrett Anderson were among the speakers.

INSURANCE ACT DRUG TARIFF.—We understand that the long-expected committee to investigate the working of the Drug Tariff under the Insurance Act, which was probably delayed in consequence of the general disorganisation induced by the war, has at length been appointed, and that its composition is as follows: Sir Rowland Bailey, C.B., M.V.O. (chairman); Dr. John Adams, member of Council of the British Medical Association; Dr. Alfred Cox, medical secretary of the British Medical Association; Mr. James P. Gilmour, member of Pharmaceutical Society of Great Britain; Mr. J. F. Tocher, Aberdeen; Mr. R. V. Vernon, Treasury; Mr. S. P. Vivian, an assistant secretary in the National Health Insurance Commission (England); Mr. W. J. Uglow Woolcock, secretary and registrar, Pharmaceutical Society. Joint Secretaries: Dr. E. W. Adams and Mr. James Rae, National Health Insurance Commission (England), Buckingham Gate, S.W., to whom communications should be addressed.

THE BELGIAN DOCTORS' AND
PHARMACISTS' RELIEF FUND.

THE subscriptions to the Fund during the week have been smaller than usual, but the amount of money which has been promised or paid to local funds, and which has not yet reached the treasurer, is growing.

A meeting of the executive committee was held on March 11th when the form of a circular statement dealing with the activities of the Fund was settled. A report of a sitting in Brussels of the "Aide et Protection aux Médecins et Pharmaciens Belges" was received through Mr. Herbert Hoover, and showed that this society, which is substantially the body whose representations formed the starting point of the British Fund, is doing good work in Belgium by succouring doctors and pharmacists in their need. The Belgian society duly acknowledged at that meeting the receipt of the 50 cases of medical material from the British Fund.

MANCHESTER AND DISTRICT.

We learn from Dr. E. M. Brockbank, secretary to the Manchester and District Fund, that the total amount received up to March 14th was £444 13s. from medical men. The following subscriptions have come to Dr. Brockbank, additional to those already acknowledged:—

	£	s.	d.		£	s.	d.
Dr. A. Hill Griffith	5	5	0	Dr. J. M. S. Preston	1	1	0
Dr. E. M. Ashworth	5	5	0	Dr. John Ferguson	1	1	0
Dr. R. Y. Aitken	5	5	0	Mr. Thos. Hopps	1	1	0
Dr. J. J. Cox	5	5	0	Dr. A. A. Edward	1	1	0
Dr. Arthur Sellers	5	0	0	Mr. W. R. Judd	1	1	0
Dr. W. Macbain	3	3	0	Mr. G. MacGill	1	1	0
Dr. T. A. Goodfellow	2	2	0	Mr. F. B. Hargreaves	1	1	0
Dr. J. Staveley Dick	2	2	0	Mr. A. Haslewood	1	1	0
Dr. C. H. Bradbury	2	2	0	Dr. J. M. Boyd	1	1	0
Dr. Arnold Edwards	2	2	0	Dr. G. E. Crowe	1	1	0
Dr. W. F. Jackson	2	2	0	Mr. J. C. Mockler	1	1	0
Dr. Thos. Laird	1	1	0	Dr. T. J. L. Forbes	1	1	0
Mr. G. B. Warburton	1	1	0	Dr. W. S. Joss	1	1	0
Dr. Crichton Hood	1	1	0	Dr. J. A. Ashcroft	1	1	0
Dr. John Scott	1	1	0	Mr. A. B. Steward	1	1	0
Dr. E. Vipont Brown	1	1	0	Dr. F. G. P. Ilderton	1	1	0
Dr. J. B. Cruickshank	1	1	0	Dr. James Fletcher	1	1	0
Dr. D. H. Cheetham	1	1	0	Dr. J. Barnes Burt	1	1	0
Dr. C. W. Thorp	1	1	0	Dr. J. G. Shanklin	0	10	6
Mr. Everard Claye	1	1	0	Mr. John Rust	0	10	6
Mr. J. McGrath	1	1	0	Mr. R. H. Wolsten-			
Dr. P. Moran	1	1	0	holme	0	10	6

Mr. Thomas Miller (5, Yarrow-street, Whalley Range, Manchester) has received subscriptions from the following pharmacists resident in Manchester and district amounting to £104 11s.

	£	s.	d.		£	s.	d.
Messrs. Bengel, Ltd.	26	5	0	Mr. J. A. Collins	1	0	0
Mr. A. Balmforth	5	5	0	Mr. W. H. Delve	1	0	0
Mr. C. A. Johnstone	5	5	0	Mr. J. E. Hulme	1	0	0
Mr. W. Lane	2	2	0	Messrs. A. and E. Jeans	1	0	0
Mr. H. T. Lockwood	2	2	0	Messrs. J. D. Macintosh,			
Mr. A. J. Pidd	2	2	0	Ltd.	1	0	0
Mr. J. H. Nidd	1	11	6	Mr. F. J. Pugh	1	0	0
Mr. F. W. Bates	1	1	0	Mr. W. S. White	1	0	0
Mr. J. Beal	1	1	0	Mr. R. H. Nuttall	1	0	0
Mr. J. Bell	1	1	0	Mr. H. R. Attenborough	0	10	6
Mr. W. Colman	1	1	0	Mr. E. Banks	0	10	6
E. S. C. (Rochdale)	1	1	0	Mr. A. L. Blain	0	10	6
Mr. D. Dickson	1	1	0	Mr. E. G. Bryant	0	10	6
Mr. J. W. Dorran	1	1	0	Mr. J. L. Balfe	0	10	6
Mr. J. W. Drinkwater	1	1	0	Mr. J. S. Breese	0	10	6
Mr. R. R. Bagshaw	1	1	0	Mr. R. M. G. Dobson	0	10	6
Mr. J. Cleworth	1	1	0	Mr. T. E. Eastwood	0	10	6
Mr. J. Grier	1	1	0	Mr. R. G. Edwards	0	10	6
Mr. B. H. Haworth	1	1	0	Mr. J. F. Fielden	0	10	6
Mr. Johnson	1	1	0	Mr. W. Gilman	0	10	6
Mr. Harry Kemp	1	1	0	Mr. C. H. Griffiths	0	10	6
Mr. H. J. Lee	1	1	0	Mr. H. Stacey Hall	0	10	6
Mr. J. R. Lateward	1	1	0	Mr. J. W. Horn	0	10	6
Mr. G. A. Mallinson	1	1	0	Mr. B. G. Hough	0	10	6
Mr. F. Miller	1	1	0	Mr. R. Swinn	0	10	6
Mr. T. O. Owens	1	1	0	Mr. W. Kirkby	0	10	6
Mr. H. M. Sandford	1	1	0	Mr. D. Mayor	0	10	6
Mr. H. A. Travis	1	1	0	Messrs. Stocks and			
Mr. H. Shelmerdine	1	1	0	Jacklin, Ltd.	0	10	6
Messrs. Salthouse and				Mr. J. Watson	0	10	6
Wild	1	1	0	Mr. T. Woodruff	0	10	6
Mr. A. E. H. Blackburn	1	1	0	Mr. A. W. Noddings	0	10	6
Messrs. J. Beard, Ltd.	1	1	0	Mr. T. Callaghan	0	10	0

	£	s.	d.		£	s.	d.
Mr. J. Holroyd	0	10	0	Mr. E. Harding	0	5	0
Mr. J. Hope	0	10	0	Mr. G. A. Holland	0	5	0
Mr. G. H. Cooper	0	10	0	Mr. Newman Hulme	0	5	0
Mr. F. A. Eastwood	0	10	0	Mr. E. Lupton	0	5	0
Messrs. R. Gibson & Sons	0	10	0	Mr. G. Marsden	0	5	0
Miss E. Sargent	0	10	0	Mr. H. C. Moses	0	5	0
Mr. E. Stables	0	10	0	Mr. W. H. Owen	0	5	0
Mr. T. Stoddart	0	10	0	Mr. A. H. Robertson	0	5	0
Mr. E. F. W. Thorpe	0	10	0	Mr. J. E. Schofield	0	5	0
Mr. R. Wheelton	0	10	0	Mr. H. Stout	0	5	0
Mr. J. J. Wilson	0	10	0	Mr. E. W. Terry	0	5	0
Mr. H. A. Livesey	0	7	6	Mr. W. Uttley	0	5	0
Mr. J. Wimblesby	0	7	6	Messrs. Wright and			
Mr. L. E. Beedle	0	5	0	Barnaby	0	5	0
Employees of Messrs. J.				Mr. A. A. Auger	0	5	0
Beard, Ltd.	0	5	0	G. F. A.	0	5	0
Mrs. Bushby	0	5	0	Mr. J. Baker	0	5	0
Mr. G. F. Bushby	0	5	0	Mr. W. G. Bosticey	0	5	0
Mr. J. W. Bygott	0	5	0	Miss D. Eastwood	0	5	0
Mr. W. Edwards	0	5	0	Mr. H. Garnett	0	5	0
Mr. H. Epstein	0	5	0	Mr. Lateward, jun.	0	5	0
Mr. F. B. Flint	0	5	0	Mr. S. Lawrence	0	5	0
Mr. A. P. Golden	0	5	0	Rev. D. F. Stoddart	0	5	0
Mr. S. H. Haines	0	5	0	Mr. H. Walken	0	5	0
Mr. H. Haworth	0	5	0	Mr. J. J. West	0	5	0

DANISH UNION OF DOCTORS.

The following is the list of subscribers to the handsome donation of Kr.3488 (£178 8s. 3d.) contributed to the Fund last week by the Danish Union of Doctors, per Dr. Christophersen:—

	Kr.		Kr.
Chr. Kromann	10	W. Dreyer	20
V. Orsted	20	J. Transtedt	10
Nytaarsaften i R.	4	A.	10
H. Brodsgaard	20	Mygind	10
Ove Hamburger	25	Fogh Nielsen	20
Miss H. Reinhard	50	Henry Hansen	10
C. Struckmann	50	Thorkil Schon	70
E. Bilsted	30	Lützhoft	30
Kr. P.	10	M. B. Moller	10
V. Engelbreth Holm	10	C. Heerup-Petersen	20
Axel Reyn	50	J. Stein	20
Miss Maria Ankersen	10	Vogelius	20
N. R. Blegvad	25	A. Lübbers	10
Aage Petri	50	E. Fabricius-Bjerre	20
Karl Moller	20	Lauritzen	30
A. Pers	100	H. C. Ringsted	10
A. Blad	25	Mr. and Mrs. N. P.	10
E. Brunn	10	Hansen	100
O. Bjerrum	10	A. Borgbjerg	50
Dr. Med.	15	G. Brynjolfsson	20
F. Michelsen	10	A. Floystrup	50
A. Kjørboe	10	R. H.	10
Einar Brünnicke	100	A. W. Christensen	10
E. Israel-Rosenthal	50	A. K.	10
D. E. Jacobson	50	H. M. K.	20
Fr. Pontoppidan	50	P. C. Bjerregaard	10
A. F. R. Halk	20	H. Brock	20
P. Harboe	20	Th. Bollerup	10
Josva Truelsen	25	C. Neergaard	50
Anders Hansen	10	A. Ewertzen	50
B. W.	10	E. H.	20
L. M.	20	Jorgen Hansen	10
E. O.	5	Helge Krarup	10
A. G. L.	5	Niels Neermann	50
J. B.-J.	5	V. Schiodte	10
C. K.-L.	10	K. Hellborn	20
K. Carde	25	Fischer-Moller	20
Gottlieb Klar	25	L. Lange	10
L. Alsted	25	A. Sjöberg	20
H. N. Karn	20	Victor Faber	10
E. Lollsgaard	10	E. Frankel	20
G. Brunn	10	V. Hertz	50
H. B.	10	Miss K.	10
V. Reinsholan	25	S. Christens	30
Lager paa Kommune-		A. Rosendahl	50
hospitalet	162	I. S.	50
O. Bayer	10	M. P. Buhl	10
S. A. Gammeltoft	25	I. I.	20
Nicolai Holm	20	G. Ottesen	20
O. S.	20	H. Jacobsen	50
P. F. Honoré	15	M. le Maire	20
Th. Mohr	10	Rosenberg	20
K. P. Kristensen	20	Mrs. Bohse	20
Lund	25	Hygom	10
Saxild	20	Edv. Porst	10
Worsaae	10	Bondrup Hammer	10
Liebe	25	Kysthospitalet, Juelsminde	10
N. C. S.	5	J. Fraudsen	20
S. Nandrup	50	V. Moller	20
N. Kjargaard	50	O. Dahlerup	10
B. D.	20	Strodtmann	10
M. A. Smidt	10	H. Levin	10
V. B.	25	Fabricus and Langballe	10
Stadfeldt	20	M. Vestergaard	10
J. W. S. J.	20	G. Beruth	10
A. Brennecke	20	K. Johnsen	10
Jorgen Moller	20	Nass-Schmidt	20
C. S.	10	C. C. Jessen	20
A. K.	5	Chr. Kroldrup	20
Carl Lorentzen	50	O. E. Schondel	20
C. R. Würtzen	20	H. Agernap	20
K. L. Bogild	50	R. E. Schneider	20

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

	£	s.	d.
Mr. A. A. Lipsecomb ...	0	10	6
Mr. Pickering ...	1	1	0
Dr. J. V. C. Denning ...	1	1	0
Captain C. M. Finney, R.A.M.C. ...	1	1	0
Dr. B. Douglas Dobie ...	2	2	0
Dr. M. A. Collins ...	1	1	0
Lanarkshire Division B.M.A. (per Mr. Hugh Miller, Hon. Sec.) ...	19	11	0
Mr. Leslie Paton ...	3	3	0
Dr. H. Symonds ...	2	2	0
Dr. J. H. Stowers ...	1	1	0
Chichester and Worth- ing Division B.M.A. (per Dr. Morton Palmer, Hon. Sec.), second donation—			
Dr. F. Hind ...	2	2	0
Mr. and Mrs. Dimphie ...	5	0	0
Huddersfield Medical Society (per Dr. H. G. Tansley, Hon. Sec.) ...	10	10	0
Dr. Hugh M. Raven ...	1	1	0
Mr. A. Hanson ...	0	10	6
Messrs. Wilcox, Joseau, and Co. ...	10	0	0
An Essex Pharmacist ...	1	1	0
Mr. E. Brown ...	0	10	6
Mr. F. H. Hendry ...	0	12	3
Mr. P. Hogley ...	0	4	0
Mr. R. Hall ...	1	1	0
Gateshead Chemists' Association, collected by (per Mr. A. D. Wyllie)—			
Mr. W. W. Gale ...	0	10	6
Mr. R. Spink ...	0	10	6
Mr. G. H. Martin ...	0	10	6
Mr. A. D. Wyllie ...	0	10	6
Mr. R. Elliott ...	0	10	0
Mr. J. Mannes ...	0	5	0
Mr. H. S. Davison ...	0	5	0
Mr. C. E. Akeroyd ...	0	5	0
Mr. H. N. Popham ...	0	5	0
Mr. R. Glendinning ...	0	5	0
Mr. W. Moffatt ...	0	5	0
Mr. L. Dunn ...	0	5	0
Mr. E. Thompson ...	0	5	0
Mr. G. T. Hogg ...	0	5	0
Mr. Robert Gardner ...	0	5	0
Mr. Robby Gardner ...	0	5	0
Mr. W. Greenwell ...	0	5	0
Mr. W. Clark ...	0	5	0
Mr. R. W. Wilson ...	0	5	0
Birmingham Local Com- mittee (per Dr. Robert Saundby), eleventh donation—			
Dr. E. StJohn White- house ...	1	1	0
North of England Branch of Belgian Doctors' and Pharmacists' Relief Fund (per Dr. James Don, Hon. Sec.), third dona- tion—			
Dr. George Duncan ...	2	2	0
Dr. James Chalmers ...	2	2	0
Dr. T. W. Hay ...	1	0	0
Dr. Crerar ...	1	1	0
Association of Certifi- cated Dispensers (Society of Apothe- caries of London) ...	16	4	6

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £8000 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments kindly contributed by Dr. W. A. H. Barrett, Melbourne, Australia.

DONATIONS AND BEQUESTS.—The late Mr. Edward Wright, of Leamington, has bequeathed £1000 each to the Royal Hospital for Incurables, Leamington, the Warneford and South Warwickshire Hospital, and the Ellen Badger Cottage Hospital, Shipston-on-Stour; £500 each to Dr. Barnardo's Homes and the National Refuges for Homeless and Destitute Children, Shaftesbury-avenue, W.C. He also left £100 each to his two nurses. Further sums of £25,000 will also accrue to the Warneford and South Warwickshire Hospital and the Ellen Badger Cottage Hospital.

ROYAL ALBERT HOSPITAL, DEVONPORT.—The annual report of the Royal Albert Hospital, Devonport, for 1914, states that during the year 703 in-patients were admitted (the average stay of each being 24.9 days), as compared with 711 in 1913. The out-patients numbered 3771. The financial statement showed that during the year £3143 were realised by selling invested funds, and there remained an unfavourable balance of £263. The Royal Albert Hospital has been in existence for over 50 years, and it performs a most useful work in Devonport; it is, therefore, much to be regretted that its financial position is so unsatisfactory. The committee make a strong appeal for more subscriptions, and it is to be hoped that this will be liberally responded to.

The War.

THE CASUALTY LIST.

THE casualties among officers in the Expeditionary Force reported since our last issue include the names of Captain Harry Vivian Byatt, R.A.M.C., and Lieutenant Theodore Stewart Lukis, M.D. Lond., M.R.C.P. Lond., 13th (Kensington) Battalion, London Regiment, died of wounds; and Lieutenants J. G. Priestley, W. W. Ingram, W. Ormsby, D. C. Turnbull, and G. P. Selby, all of the Royal Army Medical Corps, wounded.

Lieutenant Lukis, of the 13th (Kensington) Battalion, London Regiment, who died of his wounds at Boulogne Base Hospital on March 15th, was the eldest son of Surgeon-General Sir Pardey Lukis, Director-General, I.M.S. He obtained his commission in September, and was wounded in the trenches on March 13th.

THE HONOURS LIST.

The Second Class of the Indian Order of Merit has been conferred on 1st Class Sub-Assistant-Surgeon Nagindar Singh, I.S.M.D., for gallantry and devotion to duty while serving with the Indian Army Corps, British Expeditionary Force.

In the list of appointments as C.M.G., which was published in THE LANCET on Feb. 27th, the name of Lieutenant-Colonel Gerald Cree was omitted. The list now appears in the *London Gazette*.

CAPTAIN ARTHUR MARTIN LEAKE, V.C. (CLASP).

Temporary Lieutenant A. Martin Leake, V.C., who was recently awarded the distinction of a clasp, has been gazetted temporary Captain, R.A.M.C.

LORD KITCHENER ON THE WORK OF THE ARMY MEDICAL SERVICE.

In his speech in the House of Lords on March 15th Lord Kitchener paid a high compliment to the Royal Army Medical Corps and testified to the great utility of antityphoid inoculation in the following words: "The health of the troops has been remarkably good, and their freedom from enteric fever and from the usual diseases incidental to field operations is a striking testimony to the value of inoculation and to the advice and skill of the Royal Army Medical Corps and its auxiliary organisations."

THE WAR AND THE PRICE OF DRUGS.

Since the last note dealing with the effect of the war on the supply of drugs appeared in THE LANCET the general tendency of values has continued to be in an upward direction, and the prices of drugs which had formerly been supplied by Germany have been steadily increasing until at the present time the figures quoted for some of the synthetic products are remarkably high. One of the most notable examples is acetylsalicylic acid, which is now quoted at seven times the price at which it could be obtained before the war; the advance in the price of this drug has been particularly marked during the last week or two, and there is good reason to suppose that the decision of the Board of Trade to allow the word "aspirin" to be used to designate acetylsalicylic acid, from whatever source obtained, has given a fillip to the demand for this drug, which,

especially in its compressed form, is being advertised on a more extensive scale. No doubt the price would have continued to advance even if the demand had been normal, for the supplies in this country at the outbreak of war were not large, and the amount obtainable since then from neutral countries has been limited, while our own manufacturers are not as yet able to produce the drug in sufficiently large quantities to supply the deficiency. Salicylic acid and salicylate of soda are also becoming very scarce; the price of the former is now about seven times the figure quoted before the war and of the latter nearly eight times the pre-war figure, and in all probability the advance will continue until the market is relieved by the fresh supplies which are expected from France in due course. But even if an abundance of supplies were procurable the price would be much in excess of the normal on account of the high cost of carbolic acid, the raw material from which salicylates are produced. A not unimportant factor in the recent accentuation in the advance of these and other synthetic drugs is the promised blockade—not the German “blockade,” but the British. Until recently the United States and other countries had been obtaining fair supplies of drugs from Germany and had been able to send their surplus stocks to this country; the decision of the allies, however, to put a stop to Germany's foreign trade will have the effect of preventing America from obtaining regular shipments from Germany, with the result that America may have no surplus to ship to this country. This, of course, applies to most of the drugs which were formerly procured from Germany. Phenacetin and acetanilide are each about four times the pre-war price and phenazone is double. Cocaine is more than double the price quoted before the war, but the present quotation cannot be considered abnormally high, and the figure at which this drug had been selling for some time prior to August last year was unusually low. The demand for morphine and codeine from the medical services of the allied armies continues extremely large, and makers find it no easy matter to keep pace with it. In view of the vastly increased consumption of these alkaloids and the cutting off of supplies of Turkey opium, it is not remarkable that prices have advanced very considerably since the war began; in fact, it is rather surprising that they are not higher than they actually are. Fortunately good supplies of Persian opium have been available, and some business has been done in Indian opium, although, owing to the low morphine content of the latter, it is not altogether suitable for manufacturing purposes. Stocks of atropine are extremely low and prices correspondingly high. Chloral hydrate costs rather more than double its pre-war price, as also do the bromides. A drug which is affected by the war in a curious way is cod liver oil; in ordinary times a good yield from the Norwegian fishing generally means low prices, for the demand from year to year is much the same. Up to now the present season's fishing has undoubtedly been good, but the quotations have advanced rapidly since the beginning of the season, until at the time of writing they are about double those quoted when the season commenced about two months or so ago. To some extent, of course, this advance is due partly to the increased cost of freight and insurance, but the main cause is the excessive buying by the Germans on account of the scarcity in Germany of industrial oils; it is also suspected that the Germans may be

using cod-liver oil as a food, but for whatever purpose it is required the fact is established that enormous quantities of the oil are going to Germany, with the result that available supplies for the rest of the world's requirements are substantially reduced and prices higher in consequence. The above are a few marked examples of drugs that have advanced in price in consequence of the war, but the general tendency of the values of nearly all drugs is in an upward direction.

LOCAL AUTHORITIES AND NAVAL AND MILITARY SERVICE.

In a circular on the organisation of labour, issued on March 11th, the Local Government Board, while acknowledging that local authorities generally have done much to facilitate enlistment among their eligible employees, urge that

At a time when the vital interests of the country imperatively require that as many fit men as possible should be added to the Army, when the manufacture of munitions of war is hampered by lack of labour, and when the same cause gives rise to difficulties in the supply and transport of food, fuel, and other necessities only men who are indispensable for the work of the local authority should be refused permission to enlist; that artisans who belong to trades needed in the arsenals, dockyards, and armament factories should, wherever possible, be released and encouraged to find employment there; and that where there is a demand for labourers on the railways, in the docks, and on farms, &c., the local authority should facilitate the transfer to those employments of any men who can be spared, and who can there find suitable occupation and remuneration. In pursuance of this policy it will be necessary to economise labour to the greatest extent possible, and, where substitutes are needed, to engage only men who are not eligible for the army and not suited for the occupations to which labour should be transferred. There are some posts in which the employment temporarily of women in place of men may be practicable.

The circular goes on to state that the inception of relief works recommended at the beginning of the war to obviate distress from unemployment has now happily become unnecessary owing to the rapid recovery of trade, the enlistment of large numbers of men, and the execution of war contracts, and should be avoided, except such as are of pressing necessity either for reasons of public health or on account of war requirements. The schemes that have been prepared will become of the greatest value again when the war is over and men return from the army and war contracts cease. The Local Government Board in this connexion call attention to their circular of August 21st entitled “Officers of Local Authorities on Naval and Military Service,” wherein it is laid down that local authorities may properly keep open the places of officers in their employ who join His Majesty's Forces with their permission, and suggest that a similar view might apply to those persons in the employ of such authorities who in the present emergency enter other employments as suggested in the circular.

THE HEALTH OF THE SWISS ARMY.

At the beginning of the European War Switzerland had its whole army of 400,000 men under arms. After a month this number was reduced to 300,000 and at the end of the year to three divisions, numbering together about 75,000 men, who were especially guarding the Italian and Franco-German frontiers. As the whole army can be called in at a couple of days' notice this number suffices. The whole of the three divisions which have been doing

service for seven months at a stretch have just been dismissed and replaced by three other divisions. The condition of the troops is excellent, only about 30 to 40 cases of death having occurred per month, the morbidity has been small, and the general physique of the men has greatly improved. There have been 7 cases of epidemic cerebro-spinal meningitis in the barracks of Zürich, with 5 deaths, but no fresh cases have been reported. The patients are doing well. The barracks have been evacuated.

FROST-BITE.

Mr. R. H. Jocelyn Swan read a valuable paper recently before the Clinical Section of the Royal Society of Medicine on So-called Frost-bite, in which he said that during the last few months a large number of soldiers had been incapacitated from duty owing to a painful condition of the feet which had received the name of frost-bite. The subject deserves all the attention which he gave it, and we hope that discussion of it may bring out some points not only in the pathology and treatment of the affection, but also in its prevention. Mr. Jocelyn Swan said:—

I have now seen just over 100 of these cases, 80 of which have been admitted into the wards of the Royal Herbert Hospital. Almost without exception these men have been subjected to long standing in the trenches without any opportunity of active exercise or change of position other than that of sitting down with their feet dependent. Further, their feet have been continuously wet and often covered with mud and thawing snow and slush. I have made careful inquiries in all cases as to the condition of their boots and clothing, and find that they nearly all wear boots quite loose, in fact, usually one or two sizes larger than in ordinary life, and in only two cases could I find any admission of having more than one pair of socks on. Further than this, they declare that bootlaces and putties have not been tied tightly. Hence the one condition which seems applicable to all cases is the continuous standing with wet feet. In connexion with this I had one case in which frost-bite occurred in the fingers. This patient was affected in both feet and in the fingers of the right hand; at the time he had a wet woollen glove on the right hand while the left, which was unaffected, was ungloved. The patient states that the foot first feels cold and numb, but that he is sometimes able to restore warmth to it by stamping the foot on the ground. On trying to walk the front part of the foot is insensitive and he feels as if he is walking on his heel. Patients thus affected are often, from force of circumstances, obliged to remain in the trenches until darkness comes on before they can be moved to the field dressing station, during which time the causative factor continues and the condition increased by the swelling which takes place in the boot foot. When the boot is removed the swelling becomes more marked, and in a few cases I have been told that the skin of the foot was blistered. In a few earlier cases the condition was perhaps made worse by warmth, but this has been exceptional in my experience.

It should be remembered that any descriptive account of these cases is from one's personal experience in an English base and that patients are seen three or more days after the onset of the affection. The cases present themselves in two distinct groups—one in which there is little gross change in the tissues of the feet, but in which are marked subjective changes; the other in which tissue destruction has occurred leading to gangrene varying from a superficial skin lesion to a massive gangrene affecting the toes or even the whole foot, of which I hope to show some examples taken by colour photography. In these cases of gangrene I was unable to obtain any evidence of the increased intensity of cold or any difference in the primary treatment applied to the feet. The cases in which no actual lesion is present are by far the most numerous. The skin of the anterior part of the dorsum of the foot may be slightly oedematous, of slight bluish colour, and often rather dry and scaly. The patients complain of pain of an aching, swollen,

or bursting character, which is most apparent at night and keeps them awake. On a more critical examination most of these cases show a marked area of cutaneous anaesthesia and analgesia extending in "stocking form" from the points of the toes to the heads or even to the bases of the metatarsus, whilst the joint sense and vibration sense may be lost. In some cases the cutaneous change is one of marked hyperaesthesia, the slightest touch even of a piece of cotton-wool provoking marked pain. I am satisfied that the hyperaesthetic condition does not precede or follow the anaesthetic, as I was inclined to think at first, and I can give no reason for the different condition when the local appearance is the same. Whichever condition is present, however, there is often marked pain on passive movements of the toes or upon applying any pressure upon the metatarsal portion of the foot. I am not inclined to look upon this condition in any way as a "neurosis," as has been suggested, but rather as a tissue change due to vaso-motor constriction maintained for some time. The cases which present more interest from the surgical point of view are those in which there is some actual gross lesion of the tissues. In the simplest form is a small area into which hæmorrhage has occurred, the skin over it being discoloured, dry, and wrinkled. This area may slowly slough, leaving an ulcerated surface which is slow to heal. In one case under my care the under surfaces of each great toe were affected, the one as a slight cutaneous discolouration, the other as a distinct ulcer covered by dull granulations. In a more advanced condition one or more toes are actually gangrenous, presenting a dark, dried, wrinkled appearance with the rapid formation of a pronounced line of demarcation—the typical appearance of dry gangrene. In the several cases under my care it has been noticed that the great toe has been more seriously affected than the others, and when all the toes are affected the line of demarcation has become progressively near the periphery towards the outer side of the foot. These cases of dry gangrene are much best let alone, as the gangrenous part slowly separates off leaving a healing granulating area, from which it may be necessary later to remove any prominent piece of bone. In one case under the care of my colleague, Mr. C. Rowntree, separation took place behind the head of the metatarsus, and no operative interference was necessary. I should remark here that in cases in which actual gangrene has taken place it is more usual for only one foot to be thus affected, and I have been unable to discover any physical reason for this when apparently the same causation factors were present on both sides. In addition, the gangrenous areas do not present any relation to any particular points of pressure that would occur on standing, but rather affect the peripheral parts of the extremity. In three cases under my care a further extension of the tissue destruction had occurred, accompanied by rapid sloughing and a condition of moist gangrene, the terminal part of the foot being blackened, whilst the dorsum and lateral aspects were occupied by areas of superficial gangrene. There was much exudation of foul pus. The skin quickly separated with rapid infection of the tarsal and metatarsal joints. In two of these cases the condition was unilateral, and one of them developed tetanus on the fourteenth day, the spasms being particularly severe, and death occurred after four days. The third case is the most severe which I have yet seen. Both feet were involved, the right more than the left. The patient was extremely ill, having frequent rigors, with temperature reaching 106° F. On the right side the tarsal and ankle-joints were involved and I amputated the limb through the lower third of the leg. He improved for a few days; then recommenced a septic temperature, and as he was obviously going down hill rapidly I amputated the left foot through the ankle-joint, cutting through purulent tissues in fastening the flaps. From that time he commenced to improve and is now doing very well. I might remark that I have at present under my care a patient who has exactly the same symptoms as I have described in one foot with discolouration and ulceration in two toes, but who has not been out of England, but lived in barracks and who has not been subjected to any long exposure with wet feet.

Of the treatment of these cases there is not much to be said. In the majority of them presenting subjective symptoms of aching and anaesthesia I find it best to keep the patient in bed with the limb raised, to dry the foot with

spirit, and cover it with wool after dusting with boracic acid powder. Twice a day gentle massage is resorted to and in some cases weak faradism is applied, but I have found no advantage from electric baths. The aching pain is usually relieved by aspirin. Where the skin is very discoloured from underlying hæmorrhage I treat them in the same way, but where actual tissue destruction has occurred the foot is well cleaned and painted with 2 per cent. solution of iodine in spirit. When a line of demarcation appears the surface is wrapped in cyanide gauze, which is changed daily until the part is easily removed; and I would much rather await a natural separation than perform any amputation which must necessarily sacrifice a greater amount of the foot in the formation of the necessary flaps. Where moist gangrene is met with, and especially where toxic absorption has taken place, amputation just above the gangrenous area is required, but it is not necessary to sacrifice a lot of tissue by dividing the limb some distance from the highest point of gangrene. In one case I did a Syme's amputation and found pus in the tendon sheaths in front of the ankle, whilst there was a sloughing ulcer behind the heel. Very few sutures were put in and the stump drained with a good result.

With regard to prophylaxis, it is probably to the preventive treatment of this condition that attention should be directed. To my mind the condition, whatever its true pathology, is more due to the prolonged maintenance of a dependent position of the feet, wet from soakage from the slushy mud in the trenches, without any opportunity of exercise or of drying the feet, rather than to the severity of frost. It is perhaps noteworthy in this respect that the frost-bite known to Alpine climbers is more likely to occur when a thaw sets in than when severe frost is present. Perhaps with the approach of spring and better weather these cases may not occur, but there is no certainty that the present campaign will not go through another winter, when our soldiers may be fighting in even more severe climatic conditions than have already been experienced. Cannot we therefore arrange that their feet be better protected from wet when fighting in quarters where active movement is impossible? The regulation military boot cannot be improved upon as far as quality goes, but no ordinary boot will prevent water getting in over the top. The thought occurs of some form of gum boot, but these would necessarily much impede movements in attack or defence. Waders as used by ardent fishermen are too expensive for general supply, but have been a boon to those fortunate enough to possess them; and I think some good might be found from the use of thin mackintosh in the form of a stocking outside the sock but inside the puttee. This might retain any body moisture, it is true, but already the Canadian forces at the front have improvised mackintosh in this way with good results. I learn, too, that a similar condition to that which we have been seeing also occurred in the recent Balkan War from the long-continued damp to which the soldiers' feet were subjected. Another form of preventive treatment to which attention might be directed is that of thoroughly anointing the feet with an abundance of vaseline, and I understand that the free use of whale oil on the feet has been very effectual in preventing the trouble occurring. If, too, the boots were large enough to allow some play of the toes by muscular effort, and the men instructed to do it, the circulation in the extremities would be assisted, but I feel sure that if the continuous effect of wet could be avoided we should hear less of these cases of so-called frost-bite.

Mr. Swan in his interesting paper showed clearly that the conditions called "frost-bite" were not always exactly similar, making good his plea that they should receive close attention and further discussion both by pathologists and clinicians.

BRITISH COLUMBIA AND THE WAR.

Our Victoria, B.C., Correspondent writes:—"The recruits coming forward in Vancouver Island are so numerous that selection is easy. For example, none with false teeth are accepted for service in Europe. On the whole the men of the 30th Canadian battalion, which was the last to leave for the front, are taller than English soldiers used to be, though their chest measure is not so

large in proportion. The 30th battalion is made up of companies from all over the province of British Columbia, sent to train at Victoria on account of its open winter climate, rather milder than that of the Scilly Islands. Of the registered medical practitioners of British Columbia, 10 per cent. have already gone to the front or are under orders to go, and another 10 per cent. have volunteered and are waiting orders."

THE BRITISH RED CROSS SOCIETY.—The following is a summary of the work for the week ending March 13th, 1915:—

The number of auxiliary home Red Cross hospitals accepted by the War Office to date is 816, containing beds for 22,724, including 400 beds accepted during the past week. A number of Red Cross voluntary aid detachments are being utilised in connexion with these hospitals.

At the British Red Cross Hospital, Netley, the urgent need of more accommodation for isolation purposes is being met by the immediate erection of two small isolation huts. The Irish Hospital is now in full working order. During the week the following cases have been isolated: Enteric fever, 5; tetanus, 1; scarlet fever, 1; diphtheria, 1. The numbers in hospital this week are the highest so far—viz., British Expeditionary Force, 564; Belgians, 3; British Red Cross, 2; total, 569.

The Joint War Committee of the British Red Cross Society and the Order of St. John despatched the following during the week to Boulogne: 10 ambulances, 2 touring cars, 1 lorry, and 1 motor cycle; to Dunkirk: 1 ambulance; to Cannes: 1 touring car; and 1 ambulance for use in England. In all, 1165 cases of stores were sent abroad during the week. 374 cases were despatched to refill the warehouse at Boulogne. 281 cases were sent to Calais. Of these, 132 were for equipment of the huts in the enteric hospitals at that place, and the balance were requisitions for the Sophie Berthelot Hospital. During the week an urgent demand arrived from Cairo for supplies for the Australian Contingent, and 420 cases were sent to Egypt in an Admiralty transport. These cases were entirely drawn from the gifts made to the British Red Cross Society by the Commonwealth of Australia.

In addition to the stores above mentioned, 90 cases were distributed between Rouen, Paris, Fécamp, La Panne, and Dunkirk, and 111 hospitals in this country were supplied with 225 cases of stores of different kinds during the past week.

Ten motor ambulance kitchens have been completed for the front to minister to the wounded before they reach the hospital base. These vehicles have been designed to avoid as much as possible rattling, spilling, and breakage. Urns, bowls, and cooking utensils have all their allotted niches, while there is a gross of enamelled mugs distributed in wire trays convenient for carrying to the wounded. At the further end of each kitchen is the boiler for hot water with deep cooking "dixies" for making oxo, stews, cocoa, porridge, and so forth, while there are also a gas ring, a sink, and a serving hatch. The kitchens already in use at the front have been very much appreciated. According to the instructions issued by the British Red Cross Society the stores in the ambulance kitchen are to be used only for the wounded, but the cook in charge may cook army rations for the chauffeurs and orderlies attached to the ambulance unit. The stores include milk, tea, oatmeal, mutton (broth), coffee, and oxo.

Considerable outcry has arisen over the fact that war salaries of the British Red Cross nurses have been reduced from £2 2s. to £1 1s. a week. We are informed, however, that the explanation is a very simple one. When the war began the Order of St. John of Jerusalem was paying its nurses £1 a week, while those of the Society of the Red Cross were being paid 2 guineas a week. The joint committee appointed to coördinate the work of the two bodies called on a committee of ladies who had been nurses or hospital matrons to consider the matter and advise thereon. These ladies pointed out that the ordinary pay of a hospital nurse, an Army Medical Department nurse, and a territorial nurse is £40 a year, so it was decided that £1 1s. a week, or £54 12s. a year, as against £40 in the other cases, should be adopted for both the Order and the Society. Many

trained nurses are coming forward to accept these posts on the terms offered, being anxious to make personal and financial sacrifices, as doctors, business men, and others have done who have given up much to accept commissions in the Royal Army Medical Corps or other regiments, and even to serve in the ranks.

A MEDICAL OFFICER AT TRÉPORT.—We are enabled by the courtesy of a correspondent to publish some interesting extracts from a letter received from one who is at present serving in hospital at Le Tréport:—"Since I came out on August 14th I have seen much. We first went to Rouen, but after a fortnight had to leave hurriedly as the Uhlans were 20 miles away and the Taubes hovering ominously overhead. We read of our retreat being masterly. From Rouen we went to St. Nazaire, where we stayed for three months. Our work was very hard, as we had to bear the brunt of the battle of the Marne. Night and day we worked for many days. The operating theatre at one time was not disengaged a minute for four days. I shall never forget it. From St. Nazaire we returned to Rouen, and now we are at Le Tréport, about 30 miles south of Abbeville. It is an admirable hospital: all sorts of people have visited us, among them Lord Gladstone, Cardinal Bourne, and the Chief Rabbi. The consultants, Moynihan, Bradford, Makins, and Gray, have frequently been here. The character of the work has changed considerably. During the winter months medical cases have predominated. Wounds are not so severe or so numerous, owing to the entrenched positions which have been established. Tetanus is now rare since the commencement of injection of serum on the field; all wounded soldiers receive an injection of serum within 24 hours of being wounded. Cases of so-called frost-bite are less numerous; now that spring is upon us they will disappear. Everywhere great preparations are being made for the spring campaign. An advance must be made soon, and the casualties must be enormous. Rumours of all sorts fly around. Some expect the war to be over in August; others say it will last over another winter. Food seems to be running short in Germany; the spectre of starvation, together with lack of munitions, may end matters.

We are engaged in a fight for existence on an unprecedented scale. What a blow this war has been for pacifists who attempt to show that war is dying out. Here human passion is displayed in all its brutality, and science and culture have been called in to make it more awful. The dream of the time when battle flags shall be furled in the brotherhood of man and the federation of the world is like a will-o'-the-wisp to a wearied and tired traveller."

VACANCIES FOR MEDICAL OFFICERS.—We are informed that there are vacancies for medical officers in the three Field Ambulances of the Home Counties Division (T.F.) at present quartered at Windsor. Officers are required for the 1st, 2nd, and 3rd Field Ambulances. The chances of early service abroad appear to be more certain than as a regimental medical officer with any infantry unit. Information as to pay, allowances, and other conditions can be obtained by addressing the officer commanding the 1st Home Counties Field Ambulance, R.A.M.C. (T.F.), Windsor.—Six medical officers are required also at once for commissions as lieutenants in the 1st North Midland Field Ambulance. Apply to Officer Commanding, R.A.M.C. Dépôt, 91, Siddals-road, Derby.

ROYAL HANTS COUNTY HOSPITAL AND THE WAR.—The annual report states that the number of in-patients treated during the year was 1691; the increase over those of last year was 333 and the increase in operations was 247. The institution has placed 30 beds at the disposal of the War Office, and 70 Belgian sick and wounded soldiers, 22 wounded soldiers from the Expeditionary Force, and 155 sick soldiers from the camps around Winchester have been treated in the hospital. 118 soldiers have been X-rayed. The cost per patient has increased from 3s. 6d. to 4s. 1d. per diem, but the average stay of 27 days in 1913 has been reduced to 22 in 1914.

CHARING CROSS HOSPITAL.—At the annual court of governors on March 11th it was announced that the five wards closed until recently for lack of funds had been practically full of soldiers since September. The hospital accommodation was increased from 150 to 260 beds.

ARRIVAL OF WOUNDED IN EDINBURGH.—A hospital train with wounded arrived at the Caledonian station at midnight on March 11th from Southampton. There were altogether 100 cases. A number had come direct from the front, while others had come from hospitals. They included a few who had been the victims of frost-bite, but the great majority of the men were suffering from wounds. While there were members of other regiments, a good many belonged to Scottish battalions. Fifty of the cases were sent to Craigleith, 30 to Dalmeny, and 20 to the Deaconess Hospital. The removal of the men was carried out by members of the Red Cross Society.

A LECTURE ON THE WAR.—A popular lecture on the War and the Wounded, 1870-71, 1914-15 (announced in our last issue), was given at the Royal Society of Arts on March 12th by Mr. Adolphe Smith. Sir William J. Collins presided. Mr. Smith, in dealing with his personal experiences in the two wars, urged that it was in the sequence of events that history gave its most useful lessons. To-day, he said, the Allies were marching to victory because they were not unmindful of past experience. France was not beaten by the Germans in 1870-71, because the Germans never had to fight the French nation. They routed the partisans of the French empire at Sedan and starved republican Paris into surrender, that was all. To-day the Germans were confronted by a united French nation and had learnt the difference to their cost. The lecturer gave anecdotes of the siege and the war by starvation. Among the 2,000,000 civilians besieged in Paris the death-rate, for want of proper food, rose from 900 to 6000 per week. This was what we might now be enduring in London, he said, if the Fleet failed to safeguard our supplies. The danger of pestilence, which so frequently followed close on the wake of war, still remained. Fortunately we were now better armed against its horrors. Pasteur and Lister had given us antiseptic surgery, and Parkes, Edwin Chadwick, Emile Trélat, and other sanitary reformers had taught us how to battle with epidemic diseases. In spite of the greater risk and difficulties resulting from a much more extensive battlefield, there was to-day a smaller mortality from wounds and, so far, a wonderful immunity from contagious diseases. The lecturer illustrated his comparison between the two wars by lantern slides and demonstrated by photographs of actual incidents of transport and of hospitals the extraordinary development of voluntary aid and scientific treatment in the care of the sick and wounded that has recently taken place. But, he said, the struggle was not over. Cholera prevailed extensively in the Austrian army and there was typhoid fever among the Belgian troops. The former disease often travelled on the heels of the latter, so that every nerve must be strained to ensure perfect sanitation. The fighting was not all conducted on the field of battle or in the trenches. Even the feeblest might help in the national defence, for here in England, as in the plains of Flanders, work and money were wanted. England expected not merely every sailor and soldier, but every man and every woman to do his or her duty.

HOPETOUN HOUSE AUXILIARY HOSPITAL.—The ballroom wing of Hopetoun House has been fitted up by Lord Linlithgow as an auxiliary Red Cross hospital. Forty-one beds have been provided, and 32 patients are under treatment. Miss Oliphant, sister of the minister of Abercorn, is acting as matron, and a staff of 11 nurses is drawn from the Voluntary Aid Detachment of the Red Cross Society. Little required to be done in order to adapt the spacious ballroom to its present purpose, the erection of a kitchen and offices was necessary. The patients have ample scope for taking air and exercise in the beautiful grounds. Drafts arrive regularly at the hospital from the first-line hospitals. The patients under treatment at present mostly suffer from bullet wounds in the limbs and from frost-bite.

DEATH OF DR. E. N. MACBEAN ROSS.—Elizabeth Ness MacBean Ross, M.B., B.Ch. Glasg., of Nairn, N.B., died in February from typhus fever after 13 days illness, at Kragnevat, Serbia, where she was in charge of the typhus wards. Her funeral, which was according to the Greek rite, supplemented by an English service at the graveside by the British Military Attaché, Colonel Harrison, was attended by a large number of Serbian nurses and officers.

RED CROSS GIFTS FROM INDIA.—The donors of Red Cross gifts which the Indian St. John Ambulance Association has been despatching to the front since August last may judge by the following extracts from letters from the front how much they are appreciated. An officer serving in a general hospital in the Canal Defence Force, Egypt, writes: "I received for the use of the above hospital some boxes of Red Cross gifts from Simla. I am writing to convey to the donors through you, my great appreciation of their kindness and generosity; the gifts are most welcome and of great use and are thoroughly enjoyed by the sick." The following letter from Basra is written by an administrative medical officer: "I sent you a cable to-day asking for pipes and tobacco for British, and cigarettes *bidie* (Bombay Indian cigarettes) and narrow cotton-wool or coir mattresses for Indian troops. The want of a smoke is much felt and we have seemingly used up all the local tobacco. The cigarettes and tobacco in the Red Cross gift boxes were a great standby. It is a platitude to state that the gift boxes sent for both British and Indian troops were greatly appreciated. They filled a huge hiatus and brought great comfort to many a suffering wounded man. Every article has had its use. Send more warm flannel clothes, pyjama suits, socks, Balaclava caps, and flannel shirts. The dressing gowns were an immense boon. The nights are now cold and frosty and most of the sick and wounded are in tents. Indian quilts are also a great acquisition."

MEDICAL SURVIVORS FROM H.M.S. "BAYANO."—We congratulate Surgeon Kenneth H. Hole, R.N., and Probationary Surgeon Richard Batson, R.N.R., on being among the fortunate few rescued from the *Bayano*, recently torpedoed while on patrol duty.

A NEW RED CROSS HOSPITAL IN CO. DUBLIN.—Last week a Red Cross hospital was opened at Corrig Castle, Kingstown, kindly lent by the owners, Lord Longford and Lord De Vesci. There is provision for 30 beds, of which 16 are for officers. An operating-room and an X ray room have been fitted, and a competent honorary visiting staff has accepted office. The hospital is now ready to receive patients.

SOLDIERS' AND SAILORS' DENTAL AID FUND.—A public meeting will be held in aid of this fund at the Hampstead town hall on Thursday, March 25th, at 3 for 3.30 P.M., under the patronage of H.I.H. the Grand Duke Michael. The chair will be taken by the Mayor of Hampstead. Among the speakers will be Mrs. Parker (Lord Kitchener's sister) and Mr. Ben Webster. Mr. Henry Ainley will recite. Admission free. A few reserved seats at 2s. 6d., including tea, can be obtained from the honorary secretary, 36, Leicester-square, W.C.

A NEW GLASGOW WAR HOSPITAL.—The corporation of Glasgow has granted the use of its art galleries at Kelvingrove to the military authorities as a hospital for wounded soldiers. The galleries will accommodate 520 beds when all the art treasures have been removed.

THE WOUNDED AT EPSOM.—It is gratifying to learn that an agreement has been come to under which there will be no disturbance whatever of the war hospital situated in the grand stand annexe at Epsom.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of the Council on March 11th Licences to practise dentistry were conferred upon the following 20 candidates (including one woman) who have passed the requisite examinations and complied with the by-laws:—

Philip Eric Bernhard, Charles Alfred Ernest Cook, and Trafford Dudley Corke, Guy's Hospital; Arnold Court, Birmingham University; Frank Briggs Cullen, Middlesex and Royal Dental Hospitals; Clifford Cedric Dixon, Leeds University; John Langley Garrard, Guy's Hospital; Gawin Herdman, Liverpool University; Joseph James Sterling Hill, Guy's Hospital; Arthur James Hornblow, Middlesex and Royal Dental Hospitals; Alan Lawrence Miller, Birmingham University; Wallis John Milton, Bristol University and Royal Dental Hospital; Owen Colville Morphy, Middlesex and Royal Dental Hospitals; Philip Thomas Pearce, Guy's Hospital;

Eric Vincent Pollitt, Manchester University; Frank Edwin Rudd, Guy's Hospital; Leonard Smith, Birmingham University; Percival Washington Symons, Middlesex and Royal Dental Hospitals; Marjorie Jane White, Bristol University; and John Clark Yeoman, Birmingham University.

The Council also conferred the Diploma of Fellow upon Mr. Shamrao Ramrao Moolgavkar, who has now complied with the by-laws of the College.

UNIVERSITY OF BRISTOL.—At the second examination for the degrees of M.B., Ch.B., the following candidates passed:—

John D'Arcy Champney and Evelyn Bessie Salter.

UNIVERSITY OF OXFORD.—The following appointments of university lecturers have been made: Mr. Horace M. Vernon, D.M., Fellow of Magdalen College, as University Lecturer in Chemical Physiology for four years from Jan. 1, 1915; and Mr. John W. Jenkinson, M.A., D.Sc., Exeter College, as University Lecturer in Comparative and Experimental Embryology, for five years from Oct. 10th, 1915.

ROYAL SOCIETY OF MEDICINE.—The Council Club will dine at the Café Royal, Regent-street, W., on Wednesday, March 24th, at 7.30 P.M. Members who desire to be present are requested to notify Mr. J. Y. W. MacAlister, the secretary, not later than Monday, March 22nd.

HUNTERIAN SOCIETY.—At the annual discussion on March 24th next, at 9 P.M., at the Barbers' Hall, Monkwell-street, E.C., Dr. T. B. Hyslop will introduce the subject of Recent Developments in Psychotherapeutics. All members of the medical profession are invited.

A NEW CORONER'S COURT.—The borough of Southwark is to be congratulated on the provision of a new coroner's court in St. George's churchyard, where an inquest was held for the first time on March 2nd. The coroner (Dr. F. J. Waldo), medical men attending the inquests, and juries will appreciate the spacious court with its sound hygienic fittings and facilities for viewing the body without any risk of infection or unpleasantness. A Herscher's formalin preserving chamber, in which a body may be preserved for almost any length of time, is connected with the court, and the post-mortem room is fitted with the most approved appliances, including a turning table and an apparatus for washing viscera.

BRISTOL GENERAL HOSPITAL.—The annual meeting of the subscribers of the Bristol General Hospital was held on March 8th under the presidency to the Lord Mayor. The report stated that during 1914 the in-patients numbered 3271, being 215 in excess of 1913. The out-patients amounted to 34,182, an increase of 257 compared with the previous year. 618 patients were sent to the Jubilee Convalescent Home, Durdham Downs. The financial statement showed that the ordinary income was £11,799; the legacies amounted to £2858. The total ordinary expenditure was £17,593.

HOSPITAL FOR CRIPPLED CHILDREN, ALTON.—A new ward for crippled children has been opened at Sir William Treloar's Hospital for Cripples, Alton. Queen Alexandra telegraphed a congratulatory message, and Sir William Treloar presented to Frederick Barber and Doris Huntley, whose fathers are serving respectively in the Coldstream Guards and the Royal Scots Fusiliers, Queen Alexandra's medals for the children of soldiers and sailors.

ANCOATS HOSPITAL, MANCHESTER.—Through the generosity of a lady, who desires to remain anonymous, a complete electrocardiographic installation has been supplied to the hospital. Demonstrations of the practical use of this instrument will be given on Thursday and Friday, March 25th and 26th, at 4.30 P.M.

THE WELLCOME HISTORICAL MEDICAL MUSEUM.—The Wellcome Historical Medical Museum will be closed for cleaning from April 1st to April 19th inclusive.

THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS will hold its annual meeting at Washington, D.C., on May 10th, under the presidency of Dr. Gerald B. Webb, of Colorado Springs, Colo. The secretary is Dr. Martin J. Synnott, of Montclair, N.J.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Health of the Army.

In the course of his speech in the House of Lords on Monday, March 15th, Lord KITCHENER made a brief reference to the health of the army at the front. "The health of the troops," he said, "has been remarkably good, and their freedom from enteric fever and from the usual diseases incidental to field operations is a striking testimony to the value of inoculation and to the advice and skill of the Royal Army Medical Corps and its auxiliary organisations."

Naval Medical (Compassionate Fund) Act.

Amongst the Acts which received the Royal Assent on Tuesday, March 16th, was the Naval Medical (Compassionate Fund) Act.

The Easter Holidays.

Both Houses of Parliament have adjourned for the Easter Recess. They will reassemble on April 14th.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 10TH.

The Making of Tinctures in Hospitals.

Mr. BRIDGEMAN asked the Chancellor of the Exchequer whether he would consider the desirability of providing in the Finance Bill for the supply of duty-free rectified spirit to hospitals for the making of tinctures under similar restrictions to those which regulated the supply of absolute alcohol free of duty for purposes of research in clinical laboratories and colleges.—Mr. LLOYD GEORGE replied: The general question of the use of spirit is under consideration, but I am afraid that it would not be possible to grant this particular exemption.

Mr. BRIDGEMAN: Is the right honourable gentleman aware that the London Hospital alone has spent £256 on tinctures of this kind, of which £229 is duty, and could he not, at any rate, make an exception in favour of tinctures and solutions of iodine? I think it will be easier to do that.—Mr. LLOYD GEORGE: I could supply the honourable gentleman with the reasons given to me by the Customs as to the difficulty of making a discrimination. I shall hand the paper over to him.

Treatment of Nervous Breakdown in London.

Mr. W. THORNE asked the President of the Local Government Board whether his attention had been drawn to the need at this crisis for the treatment, apart from lunacy, of recent and uncertifiable cases of nervous breakdown; and whether, in that case, it was still imperative that any application from the London County Council or other county councils for powers to provide such treatment must be delayed till after an expert inquiry, seeing that borough councils now possessed these powers.—Mr. HERBERT SAMUEL answered: I would refer the honourable Member to previous replies. As regards the powers which the London County Council are seeking in their General Powers Bill, it will be for the committee before which it comes to decide whether the particular power should be given.

Asylums Taken Over by the Military.

Mr. CHARLES DUNCAN asked the Home Secretary whether he could state the position of the staffs of those asylums taken over by the military authorities; whether the Government proposed to utilise the services of the existing staffs; whether their continuity of service for the purposes of superannuation would be safeguarded; and whether their pay and prospects would remain not less favourable than those at present enjoyed in the services of the local authorities concerned.—Mr. McKENNA said in reply: The answer to all the points in the question is in the affirmative. I am advised that as the asylums will during their use as military hospitals continue to be for legal purposes asylums, and the officers will remain in the service and pay of the asylum authority, the Asylum Officers' Superannuation Act, 1909, will continue to apply to the officers, and their service for pension purposes will not be broken.

Antityphoid Inoculation.

Mr. CHANCELLOR asked the Under Secretary for War a series of questions in regard to the treatment of certain soldiers who had not been inoculated.—Mr. TENNANT wrote in reply: I am making inquiries into these cases, as it is impossible to obtain full details at such short notice. I understand the position generally in the cases referred to to be that men are not being punished for not submitting to inoculation, but as only the inoculated men are being sent to the front those uninoculated are not given the privilege leave allowed to men under orders for abroad.

Epsom Stand as a Hospital.

Mr. WHITEHOUSE asked the Under Secretary for War whether the agreement with the authorities of the Epsom stand, now being used as a hospital, necessitated the removal

of a number of the wounded from that part of the stand which was to be reoccupied by the owners of the stand; the number of wounded who would be so disturbed; and whether they were being removed to other rooms in the stand or sent to other hospitals.—Mr. TENNANT furnished the following written answer: No removal of patients is involved, as before the Spring Meeting those occupying the third floor will have been discharged on sick furlough. Patients are not accommodated on the ground floor or in the basement, the remaining portions of the Grand Stand affected by the agreement. The hospital, which is now used for transfers from Woolwich and not for direct admissions from overseas, will be filled again after the Spring Meeting.

Dental Treatment for Recruits.

Sir WILLIAM BULL asked the Under Secretary for War whether an official intimation had reached Nottingham that the War Office had sanctioned a change regarding recruits and defective teeth; whether men would now be allowed to be attested if otherwise fit and subject to their consenting to undergo dental treatment; and, if so, whether it was proposed to extend such official orders to other recruiting centres.—Mr. TENNANT (in a written answer) replied: Instructions have been issued to all commands that recruits found physically fit in every respect except on account of insufficient teeth may be passed by a medical examiner of recruits as "fit, subject to dental treatment." Such men, if willing to undergo dental treatment, may be attested and dispatched to the depot, final approval being deferred until they are pronounced to be in all respects fit. The necessary dental treatment will be carried out as soon as possible after the men's arrival at the depot.

Dentists in the Field.

Sir CLEMENT KINLOCH-COOKE asked the Under Secretary for War whether he was aware that dentists were attached to the New Zealand Expeditionary Force, and would he consider the possibility of attaching dentists to the different units of the new army.—Mr. TENNANT wrote in reply: Yes, I am aware that dentists are attached to the New Zealand Expeditionary Force. Dentists and dental mechanics with full outfits, instruments, apparatus, and material were some months ago supplied to the British Expeditionary Force. Dentists have already been appointed at the large stations in the United Kingdom, and more appointments will be made, if required, as soon as the instruments, &c., are available from the manufacturers.

Medical Stores at Military Encampments.

Mr. WALTER GUINNESS asked the Under Secretary for War whether he was aware that in many of the new hut encampments there was no accommodation for keeping medical stores and instruments or for the officers in medical charge to see the sick, who in many cases had to walk considerable distances in consequence; and whether steps would be taken to supply huts for that purpose.—Mr. TENNANT wrote in reply: At the larger hatted camps there are hut hospitals with suitable accommodation for examining the sick and keeping medical stores. At some others there are medical examination rooms specially built, and generally where the medical authorities have asked for these to be provided they have been built. In some camps where special huts have not been built for this purpose and where the troops are in occupation, it is possible to arrange for seeing the sick in some existing huts which are to spare. If it is found that spare huts are not available medical inspection rooms can be built as in the cases alluded to.

THURSDAY, MARCH 11TH.

Epsom Stand as a Hospital.

Replying to Mr. WHITEHOUSE, Mr. TENNANT said: I understand that an agreement has now been come to under which none of the accommodation at the Epsom Grand Stand which has been used as a hospital will have to be vacated in connexion with the spring meeting. This very satisfactory arrangement reflects credit upon those concerned.

Supplies of Opium.

Sir J. D. REES asked the Under Secretary for India whether there was at present a serious deficiency in the supply of opium for medicinal purposes; whether prices had greatly risen; and to what extent the deficiency in stocks and the rise in prices was due to the Government policy of destroying the opium trade.—Mr. CHARLES ROBERTS answered: I am informed that at present the market for opium for medicinal purposes in this country and in the United States is well supplied and that prices are tending to fall. Opium for these purposes has previously been drawn from the Levant and from Persia, and the supply is quite independent of the Indian Government's opium policy.

Dope Poisoning.

Mr. ROWLANDS asked the Under Secretary for the Home Department whether his attention had been called to the case of a young girl working on aeroplanes being killed by dope poisoning on Feb. 28th; whether this was the second death this year at the Crayford works; whether there had

been other cases in other parts of the country; whether it was admitted in the evidence at the inquest on March 3rd that the system of ventilation required by the Home Office to prevent dope poisoning, which was supposed to be perfect, had failed; whether the Home Office was still thoroughly satisfied that the provision of effective means of ventilation was a sufficient precaution, and what were those means; or whether any further steps had been taken to ensure the absolute safety of the health and lives of the young women employed on varnishing with dope.—Mr. CECIL HARMSWORTH replied: I am aware of this case, but I am advised that the circumstances attending it do not throw doubt upon the efficiency of the means which have recently been taken on the recommendation of the Home Office to prevent dope poisoning. Poisoning from dope is gradual, and in the case in question the mischief must have arisen before the installation of the new system of ventilation, as the ventilation was not at work till the latter half of January, and the girl who had been employed on this work since October left on Feb. 3rd. I am informed that it is not correct that any admission was made at the inquest that the system of ventilation had failed. The arrangements at the Crayford works which provide for the removal of the fumes at the point of origin have been carefully inspected by the expert advisers at the department and have been reported by them to be quite satisfactory.

Mr. ROWLANDS: I would like to know whether the medical authorities of the Home Office are satisfied now, as they were a month ago, that this ventilation system is thoroughly efficient, and whether they will take the precaution of again examining the girls as they did in December, when they found 43 girls affected by the fumes?—Mr. CECIL HARMSWORTH: Yes. I believe the medical officers of the department are perfectly satisfied with the system, but if my honourable friend would like another inspection made I will make representations to the proper authorities.

Mr. ROWLANDS: I should like it.

Soldiers' Nerve Strain.

Lord ROBERT CECIL asked the Under Secretary for War whether the War Office would give an undertaking that in future uncertifiable soldiers invalided through nerve strain would not be placed under asylum administration or in charge of officials connected with lunacy, and that, in the event of their becoming certifiable, such soldiers as were already interned in the State institution at Moss Side, near Liverpool, or in similar institutions elsewhere would not be certified except by independent physicians unconnected with any lunacy staff or with the Board of Control.—Mr. TENNANT wrote: No case of nerve strain is or will be placed under asylum administration. Cases in military hospitals, if transferred on discharge as certifiable lunatics to county asylums, will come before a board of military medical officers and are certified under the Lunacy Act.

MONDAY, MARCH 15TH.

Duty-free Alcohol in Laboratories.

Replying to Mr. BOLAND, Mr. BECK (on behalf of the Secretary to the Treasury) said: It is already the practice to allow public institutions to use duty-free alcohol in their laboratories for research purposes.

Prevention of Spotted Fever.

Mr. CHARLES BATHURST asked the Under Secretary for War whether, in view of the existence and possible spread of spotted fever in various English camps and garrison towns, he would take steps to have published in garrison and regimental orders, for the information of all military units, the warning lately officially expressed by Dr. Newsholme, medical officer to the Local Government Board, to the effect that cerebro-spinal fever was generally associated with overcrowding, insufficient ventilation, and uncleanness.—Mr. TENNANT answered: Special instructions have already been issued to all commands in connexion with this disease to ensure that the troops are not overcrowded or accommodated in buildings or houses which are insanitary, and to consult with the medical officers of health and the military sanitary officers as to the necessary measures to be taken.

Antityphoid Vaccine.

Answering Mr. JOWETT, Mr. H. BAKER (Financial Secretary to the War Office) said: The antityphoid vaccine used in the army is made in the laboratory of the Royal Army Medical College, but since the outbreak of the war the Inoculation Department of St. Mary's Hospital and the Lister Institute have provided the Army Medical Department with a large quantity of this vaccine at cost price, as the output from the College was insufficient to supply the increased number of troops. The cost of production of army vaccine in the laboratory of the Royal Army Medical College is estimated to be 1½d. per double dose per man.

Inoculation against Typhoid.

Mr. BAKER informed Mr. JOWETT that no fees nor other remuneration beyond the salaries of army medical officers were paid for inoculation or vaccination against typhoid.

Grants for Sanatoria.

Sir RYLAND ADKINS asked the Chancellor of the Exchequer whether the Treasury would sanction during the war any advances of capital or loans for institutional treatment under the National Insurance Acts or the Mental Deficiency Act.—Mr. LLOYD GEORGE wrote in reply: Capital grants for sanatoria will continue to be made where necessary and, subject to the same proviso, local authorities will not be prohibited from borrowing for the same purpose. As regards loans under the Mental Deficiency Act, I do not think that capital expenditure for this purpose is desirable at the present time in the absence of very special considerations.

Medical Service with the Army.

Several topics relating to the medical service with the army were referred to during the debate on the motion for the adjournment for the Easter Recess.

Mr. WALTER GUINNESS said that in many cases medical officers in the Territorial Force had come out, at disastrous results to their professional positions and prospects. In many cases they had only two days' notice. At that time it was absolutely impossible to find a locum-tenent. Cases had been brought to his notice where medical men came away from practices which they had built up for themselves by years of painstaking attention, and they had to leave those practices without anyone to look after them for six or eight weeks. These medical men who had probably reached comfortable positions financially suddenly found their income reduced to 14s. a day. That income was, no doubt, reasonable enough for the annual training, but they felt it was most unjust that while they were receiving 14s. a day, doctors who were now joining the New Armies with the same rank of lieutenant were receiving 24s. a day and allowances in addition. The best pay was being given to those who had made the least sacrifices. In many cases doctors who joined the New Armies were only just qualified. He was informed that a larger proportion of candidates were being passed than in times of peace, and a large number of those were joining the New Armies. Even in the case of men who had given up practices, their sacrifices had been considerably less than the Territorials, because the former had in many cases taken four or five months to arrange about a locum-tenent and to put their affairs in order. He did not say that it was possible or reasonable that the Government should pay the regular Royal Army Medical Corps officer in the same way as an officer in the same class in the New Army. He thought that the line had been drawn in the wrong place. The War Office ought to have drawn it not between one class of casual medical officer, who would go back to civilian employment, and another, but between the permanent army doctor and the temporary one. Pay which was suitable enough for a permanent army doctor was quite insufficient for a man who was much older and probably had got a family to keep and who had made a very large sacrifice of his civilian practice. When the temporary medical officer returned to civil life he found his practice gone, and he would probably have to work right up again from the beginning. He knew what the War Office answer was. It was that the Territorial medical officers contracted during peace time on certain terms, and it was only reasonable that they should carry out their bond, and that the War Office had to go out in the open market and employ men at what their services would fetch. That was not a fair answer. It was not true that the Territorial medical officer was carrying out the contract which he undertook in time of peace. It was not so in two respects. First of all, in times of peace he only made himself liable for service at home. The vast majority of Territorial medical officers—the only ones for whom he was pleading—had accepted the obligation to serve abroad. Again, these men joined in a particular unit. They were distinctly given to understand that though they were members of the Royal Army Medical Corps (Territorial Force) they would be definitely attached throughout the whole period of their service to a selected unit. A few weeks ago they received a circular stating that it was impossible in view of the dearth of officers to retain that system which had been maintained in the Territorial Force prior to the outbreak of hostilities, so that in two respects these medical men for whom he was pleading were in an absolutely different position from that which was contemplated when they joined the Territorial Force.

Mr. PIKE PEASE said that it seemed to him if it was possible to find an alternative to the rum ration, that it would be wise for the War Office to give it to the troops.

Mr. TENNANT (Under Secretary for War) said that the honourable Member for Darlington (Mr. Pike Pease) had been good enough to make suggestions to him by which it was hoped that an alternative might be found to the rations for that large and growing body of men who objected on principle to taking alcohol to be supplied as an alternative to rum in the trenches. He could assure the honourable Member that he would bring to the notice of the Director of Medical Stores and the Director of Supplies the suggestion he had made, and he dared to say that if they all tried

together they might find something which it would be suitable and possible to provide to that very deserving class of total abstainers.

Mr. RONALD MCNEILL said that there were a number of retired medical officers who at the time of mobilisation were in charge of depôts and who on mobilisation were recalled to the service. By a certain rule in the Regulations of the Army officers who had retired and were recalled to the service at a time of emergency were allowed a grant of £100 towards their outfit. At the time of the outbreak of the war the Army Council issued various Orders to certain commands and advertised this grant to which officers were entitled to. Medical officers were, if he was correctly informed, under no obligation in regard to the providing of uniform until a comparatively short time before the outbreak of the war. He thought that it was in May of last year that they were first called upon to provide themselves with uniform, and when the war broke out and the various Orders were made known there was nothing to lead the medical officers to know that they would be treated differently from other officers of similar rank and position. To begin with, their pay was much smaller. They had much less means for providing themselves with uniform, and they naturally expected equal treatment. A few weeks after the mobilisation Order they were suddenly told that they were not to expect this grant, although other officers of the Regular Forces were to receive £100 for providing uniform. Medical officers were not to be given anything towards the provision of that. That was a grievance, and they felt, he thought, rather keenly that they were in a worse position than brother officers of the fighting line. They thought that they ought to receive the same consideration.

Mr. H. BAKER (Financial Secretary to the War Office) said that it had been pointed out that it appeared that a lieutenant in the Territorial Force or the Royal Army Medical Corps received 14s. a day, whereas a person of the same rank performing the same duties in the New Army received 24s., apparently a difference of 10s., which did seem very considerable. The honourable Member (Mr. Guinness) omitted altogether the question of allowances to which these two types were respectively entitled. Whereas the man in the Territorial Force with his 14s. a day was entitled to allowances which might bring him up to 21s. 9d. as a maximum, the civilian who came into the New Army could never in any case get a greater sum than 25s. 9d. The difference, therefore, instead of being so great as 10s., was, in fact, 4s. There was still a difference. He agreed that it was not very easy to deal with this and other cases. What were the authorities to do when they found the supply of a particular kind of soldier was falling off? In order to increase the supply they had to raise the price in the market. What were they to do when those who originally entered on the lower basis found that their position, though it was satisfactory before, was now not so satisfactory compared with that of the later recruits? The authorities must either leave them as they were or they might level up. Levelling up was a big business if it were set about in that way. It had hitherto been the practice to leave people as they were. That was done in the South African War. It was not then thought necessary that the first comers should be raised to the higher rates paid to the later comers. In cases it might seem hard to a man that he should be doing precisely similar work to the man beside him for a lower rate of pay. But when once the levelling-up process began it might become endless. If they began to put up rates they could not confine the process to a small section. An increase must apply to all who had gone before. In putting it thus he hoped that he would not be thought to depreciate in any way the very great sacrifices which honourable Members had described and which were being borne by the medical profession on behalf of the country. There was no doubt that doctors all over the country had given up valuable practices and had given from time to time their energy and service to the country.

Mr. BRIDGEMAN: When was the salary for doctors raised? My impression is that it was raised immediately after the war began.—Mr. BAKER: It was when the formation of the New Army began.

Mr. BRIDGEMAN: Then how did you know that a sufficient number of doctors would not be forthcoming at the old rate? —Mr. BAKER: The higher rate was, of course, based on information in the possession of the Surgeon-General of the Army Medical Service, who is in close touch with the profession. He knew the enormous number that would be required as well as the number likely to be available. Very careful records are kept in peace time of the doctors who may be expected to serve, and I do not doubt that it was on these statistics that the decision was come to that if the necessary number of doctors was to be obtained the rate of pay must be slightly increased.

Mr. MCNEILL: Will the honourable gentleman say a word about the exclusion of medical officers from the kit grant? —Mr. BAKER: It did not appear to me to be quite in accordance with the actual practice, and if the honourable Member

desires I will communicate with him by letter. I will conclude by saying that in all these cases of men working side by side on differential rates of pay I hope the honourable Member will not suppose it is through any indifference to the merits of this class or through any failure to recognise the great sacrifices which they are making that the present principle is observed.

TUESDAY, MARCH 16TH.

Indian Assistant Surgeons at the Front.

Mr. O'GRADY asked the Under Secretary of State for India whether he was aware that there were a number of Indians acting as assistant surgeons at the front and that these officers had a large and continuous military medical experience, including that of the present war; and whether, in view of these facts and the consequent shortage of medical men who must obtain their degrees in Great Britain before they could obtain the rank of commissioned officer, steps would be taken to promote to commissioned rank the assistant surgeons who had obtained certificates through examinations in India.—Mr. CHARLES ROBERTS replied: Vacancies occurring in the commissioned ranks of the Indian Medical Service are being made good by the grant of temporary commissions to medical men, Indians and others, having a professional qualification that is registrable in the United Kingdom. It is not considered desirable to lower the standard of admission.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

- BLAKE, PAUL, L.R.C.P. & S. Irel., has been appointed Medical Officer of the Kilmeague and Robertstown Dispensary District by the Naas Board of Guardians.
- DEAN, HENRY ROY, M.D., F.R.C.P. Lond., has been appointed to the Chair of Pathology and Pathological Anatomy in the Sheffield University.
- DOYLE, F.W., M.B., B.Ch. N.U.I., has been appointed Assistant Master of the National Maternity Hospital, Dublin.
- FOWLER, S.C., M.B., C.M. Edin., has been appointed Chairman of the Midlothian Local Medical Committee in connexion with the National Insurance Act.
- MACDONALD, D. M., M.D., F.R.C.P. Edin., has been appointed Visiting Physician to the Manchester and Salford Convalescent Home, Arnside, Westmorland.
- MCVITTIE, A. C., M.B., B.Ch. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Lerwick District of the county of Shetland.
- METCALFE, BRIAN BENTLEY, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the St. Cleer, St. Pinnock, and St. Neot Districts by the Liskeard (Cornwall) Board of Guardians.
- MILLER, WILLIAM ROBERT, M.D., B.Ch., B.A.O. Dub., has been appointed Medical Officer and Public Vaccinator for the Fifth District by the Penzance (Cornwall) Board of Guardians.
- NETTLE, WILLIAM, M.R.C.S., L.S.A., has been appointed Medical Officer for the St. Cleer, St. Pinnock, and St. Neot Districts by the Liskeard (Cornwall) Board of Guardians.
- RAWSON, WILLIAM F., F.R.C.S. Edin., L.R.C.P. Lond., has been appointed Surgeon to the Bradford Municipal Maternity Hospital.
- STEWART, W. P. A., M.B., Ch.B. Glas., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Tarbert District of the county of Argyll.
- WATSON, HENRY, M.B., Ch.B. Glas., has been appointed Medical Officer of the No. 2 Medical District of the Paisley Parish Council.
- WRIGHT, F. R. E., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Braunton District of the county of Devon.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

- ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with residence, board, &c.
- BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
- BIRMINGHAM, CITY OF.—Female Assistant Medical Officer of Health for Infant Consultation work, &c. Salary £300 per annum.
- BIRMINGHAM, CITY MENTAL HOSPITAL, Winslow Green.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.
- BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, fire, lights, and attendance.
- BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Physicians. Salary at rate of £80 per annum, with board, apartments, washing, and attendance.
- BOLTON INFIRMARY AND DISPENSARY.—Senior House Surgeon and Second House Surgeon. Salary £230 and £200 per annum respectively, with apartments, board, and attendance.

- BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence board, and laundry.
- BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Three House Surgeons for six months. Salary £100 per annum, with board, lodging, and washing.
- BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
- BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Two Resident Medical Officers. Salaries £150 per annum, with apartments, board, laundry.
- BRISTOL GENERAL HOSPITAL.—First House Physician, Second House Physician, House Surgeon, and Casualty House Surgeon, also Resident Obstetric Officer, for six months. Salaries at rate of £150 per annum, with board, residence, &c.
- BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
- BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
- BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
- BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.
- CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
- CARLISLE, CUMBERLAND INFIRMARY.—House Physician for six months. Salary as arranged.
- CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, and washing.
- CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.—Resident House Surgeon. Salary £50 per annum, with board and residence.
- CHESTERFIELD, BOROUGH OF.—Medical Officer of Health. Salary £500 per annum.
- DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.
- DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.
- DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, washing.
- DUMFRIES, COUNTY OF DUMFRIES AND BURGHS.—Female Medical Assistants to Medical Officer of Health and School Medical Officer. Salary £250 per annum.
- ECCLIS AND PATRICKROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, residence, and laundry.
- EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants in Out-patient Departments.
- GENERAL LYING-IN HOSPITAL, York-road, S.E.—Resident Medical Officer for three months. Salary £50 per annum, with board, &c.
- GLASGOW, CORPORATION OF THE CITY OF.—Vacancies among Junior Resident Medical Staff of City of Glasgow Fever Hospitals. Salary at rate of £160 per annum. Also Assistant Bacteriologist (two vacancies). Salary £250 per annum.
- GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon.
- HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
- HAMMERSMITH INFIRMARY AND WORKHOUSE, Ducane-road, Wormwood Scrubs, W.—First Assistant Medical Officer. Salary £220 per annum, with board, lodging, washing, and attendance.
- HAMPSHIRE COUNTY COUNCIL.—Bacteriologist. Salary 5 guineas a week.
- HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Two Female Resident Casualty Officers for six months. Salary at rate of £50 per annum.
- HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.
- HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board, residence, &c.
- HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board, laundry.
- KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.
- LEEDS, GENERAL INFIRMARY.—Resident Medical Officer for six months at Ida and Robert Arthington Hospitals. Salary £60 per annum, with board, residence, and laundry.
- LIVERPOOL ROYAL INFIRMARY.—Two House Physicians, Three House Surgeons, and One House Surgeon to Gynaecological Department, all for six months. Salary at rate of £60 each per annum.
- LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Surgeons and One House Physician, each for six months. Salary at rate of £60 per annum with board and residence.
- MAIDSTONE, KENT COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, quarters, attendance, washing, &c.
- MANCHESTER, ANCOATS HOSPITAL, Mill-street.—House Physician. Salary £80 per annum, with board and residence.
- MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department for six months. Salary £100 per annum.
- MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
- MANCHESTER, EAST LANCASHIRE TERRITORIAL FORCE.—Officers in East Lancashire (Second Line) Field Ambulance.
- MANCHESTER EDUCATION COMMITTEE.—Female Assistant School Medical Officer, unmarried. Salary £300 per annum.
- MIDDLBROUGH, NORTH ORMSBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.
- MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.
- NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.
- NORTH RIDING OF YORKSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
- NORWICH, CITY OF.—Assistant School Medical Officer. Salary £30 per month.
- NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry.
- PAISLEY DISTRICT ASYLUM.—Assistant Resident Medical Officer. Salary £200 per annum, with board and apartments.
- QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician for six months. Salary £100 per annum, with board, residence, and washing.
- ROTHERHAM COUNTY BOROUGH.—Tuberculosis Officer and Assistant School Medical Officer. Salary £350 per annum, with board and residence at Kimberworth Tuberculosis Hospital, Rotherham.
- ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male and Female House Physicians and House Surgeons for six months. Board, lodging, and washing provided. Also Acting Assistant Physician to have Care of Out-patients. Also Female Senior Obstetric Assistant. Salary £75 per annum, with board, lodging, and washing. Also Female Junior Obstetric Assistant. Board, lodging, and washing provided.
- ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £75 per annum, with board, lodging, and washing. Also Medical Officer for Prevention of Consumption Department. Salary £420 per annum.
- ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence. Also Dental Surgeon.
- ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, all found.
- ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer for three months. Salary at rate of £90 per annum, with board, residence, and laundry.
- SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £100 per annum each, with board and residence.
- SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.
- SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £80 per annum respectively, with board, residence, &c.
- SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician.
- SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.
- SHEFFIELD UNIVERSITY.—Joseph Hunter Chair of Pathology.
- SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.
- SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.
- STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £180 per annum, with board, washing, and residence.
- TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.
- UNIVERSITY OF LONDON.—University Chair of Physiology at St. Bartholomew's Hospital Medical School. Salary £600 per annum.
- VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon for six months. Salary £100 each, with board and lodging.
- WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.
- WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
- WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.
- WOOLWICH INFIRMARY, Plumstead.—Resident Assistant Medical Officer, unmarried. Salary £180 per annum, with apartments, rations, and washing.
- WORCESTERSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £350 per annum. Also Assistant Tuberculosis Officer. Salary £350 per annum.
- YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and attendance.
- THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Northleach, in the county of Gloucester.

Births, Marriages, and Deaths.

BIRTHS.

McRAE.—On March 9th, the wife of G. Douglas McRae, M.D., F.R.C.P. Edin., Glengall House, Ayr, of a son.

DEATHS.

DOBIE.—On March 12th, at 4, Hunter-street, Chester, William Murray Dobie, M.D., aged 86 years.

KENT.—On Feb. 19th, at Tong Shan, North China, Anthony Lloyd (Tony), the second son of Dr. and Mrs. Hugh Kent, aged 1 year and 11 months.

KING.—On Dec. 13th, 1914, at his residence, 1315 Massachusetts-avenue, Washington, D.C., U.S.A., suddenly, of heart failure, Dr. Albert F. A. King, son of the late Dr. Edward and Louisa Freeman King, of Blackthorn, Oxfordshire, England, aged 73 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A MINIATURE COLONIAL MEDICAL SERVICE.

A REPORT on the Tongan or Friendly Islands Protectorate, prepared by Mr. H. E. W. Grant, C.M.G., the British Agent and Consul, has just been presented to Parliament. The islands in question, over which a British Protectorate was proclaimed on May 19th, 1900, are situated in the Southern Pacific to the E.S.E. of Fiji and 390 miles therefrom. They have an area of 385 square miles and a native population of about 23,000. The non-native population is estimated at 835, including 358 British, 133 German, and 45 American. The birth-rate per 1000 for the year 1913 was 35.89 and the death-rate 17.36. The following is an extract from a memorandum on the medical service of Tonga prepared by the chief medical officer, Dr. Arnold W. Izard: "At the three centres—Nukualofa, Haabai, and Vavau—hospitals have been established, each under a European doctor. Each hospital is a wooden building with two wards, male and female, a dispensary, operating theatre, and store-rooms. Native houses have been erected in each hospital compound for isolation cases. Each hospital has native medical students. Nukualofa has five, the other two four each. These boys do much of the work of the hospital, such as nursing, dressing surgical cases, and dispensing, under the personal direction of the local medical officer; they are paid by the Government of Tonga salaries varying from £2 a month for the junior boy to £5 a month for the head boy, according to the length of service and efficiency, being supplied with quarters, rations, and clothing. The policy of the department is to train the boys to fit them for appointment of dispensers in the outlying islands where there are no doctors. Already four such dispensaries have been opened at Mua, Nuafoou, Eua, and Nuaatobutabu. Small houses have been built for them of four rooms, including a dispensary, and they are supplied with dressings and drugs. They receive a salary of £6 a month and 30s. a month in lieu of rations. The dispenser at Mua is the head boy of the service, and he receives £100 a year without rations. The chief medical officer receives a salary of £500 a year, the medical officers at Haabai and Vavau £400 a year each. Each medical officer has the right of private practice, but all Tongan subjects, and all those who pay taxes, are treated at the public expense. A fourth medical officer has recently been appointed to Nukualofa, at a salary of £400 a year, to assist the chief medical officer in his duties and to allow him to visit the outlying islands. All the medical officers are supplied with furnished quarters. In addition to treating the natives they carry out the duties appertaining to the offices both of health officer and port health officer. As Tonga is within easy reach both of New Zealand and Australia, quarantine regulations are strictly carried out."

THE TREATMENT OF THE GASTRIC CRISES OF LOCOMOTOR ATAXY.

To the Editor of THE LANCET.

SIR,—Can any of my professional brethren help me? I am treating a case of locomotor ataxy in which the gastric crises are frequent, very severe, and extremely difficult to relieve. Salvarsan was followed by incessant vomiting and a dry brown tongue for nearly a week. Aspirin in 30 gr. doses every four hours gave no relief. Blistering epigastrium, the administration of alkalies and bismuth had not the slightest result. The only thing that has the least beneficial effect is morphia, which does not cause constipation with him, but is often attended with diarrhoea. I have pushed this to liq. morph. hydroch. 5i. every two hours by the mouth, with an occasional hypodermic injection of $\frac{1}{2}$ gr. of morphia when the pain is very severe, and am getting afraid to go any further, though even the hypodermic dose does not make him feel sleepy.

I enclose my card, and am, Sir, Yours faithfully,
March 8th, 1915. NEMO.

TURNING OFF THE GAS.

THE Portsmouth coroner recently investigated a case of poisoning by gas, in which the death of a young man was apparently due to a cause which may be of not infrequent occurrence. He and his newly married wife went to bed in lodgings which they had taken that afternoon at Southsea and were found insensible at 10 o'clock next morning, only the wife recovering. It appeared that the landlady, following her usual custom, had turned off the gas at the meter on going to bed, and on rising at 6 A.M. had turned it on again, while her lodgers were still asleep. It was conjectured that one of the new

lodgers, unaware of this practice, had tried to light the gas during the night, and having failed to do so owing to it having been turned off had left the burner open. Householders who, with the object of economy in view, turn off the gas at the meter at night and turn it on again early in the morning, should also remember that danger may well arise if the inmate of any room should happen to leave the gas alight after going to bed and should fall asleep. This might occur where all the members of a household knew that the head of it had the habit of turning off the gas at a given hour.

CENTIGRADE AND FAHRENHEIT.

To the Editor of THE LANCET.

SIR,—In his letter to THE LANCET of March 13th (p. 580) Dr. H. Alston criticises a statement in my letter of last week as to the range of body temperature in health. The appeal to the line on our charts and thermometers leaves me cold; but I admit that I have put the normal range somewhat lower than that which is given by various authorities. They differ as to the extent of the range, and mostly state one greater than either Dr. Alston or myself; but they agree with him in taking the upper limit to 99° F. or even (Wunderlich) to 99.5°.

Personally, I should have thought it was more common to find a temperature near 97° F. at the low time of the 24 hours (midnight, or 2 A.M.) than one of 99° at the higher. However, my object in writing was to suggest more than one *memoria technica* for the unfortunate Briton when trying to think in Centigrade figures. If the suggestion with regard to the range of normal temperature is unacceptable or misleading, I may leave it to the ingenious practitioner to work out one for himself.

March 13th, 1915.

I am, Sir, yours faithfully,
GRIMPEUR.

THE RED CROSS IN DENMARK.

THE movement for an improved system of sick-nursing, which at the time of the Crimean War began in England, Switzerland, and other countries, did not reach Denmark till much later, for Florence Nightingale's book on sick-nursing did not appear in Danish until 1861. The first effort made was to establish a "Deaconess" Institution which was inaugurated on May 26th, 1863, on the initiative of the Queen of Denmark, the Sisterhood at Kaiserswerth being taken as a model. The institution, which is situated in a suburb of Copenhagen, developed into a large institution and elevated nursing to a high standard all over the country. The Red Cross Society followed in the year 1875, 12 years after the conference at Geneva, but the condition of the country had long before taught the people to act up to the spirit of the Red Cross. During the three years' war in 1848-50 a committee was formed to organise private aid for the sick and wounded, which collected a large sum whereby many wounded and survivors had reason to be very grateful for the committee's assistance. When Denmark in 1864 had to fight alone against the allied powers of Prussia and Austria she considered it best to follow the national tradition and work on the foundation already laid. The committee of 1848 reassembled to renew its work with the same interest and energy as during the former war. One of the objects of the Red Cross Society was to prepare in time of peace well-trained nurses, and by the co-operation of the superintendent medical men of the larger hospitals it has been able to train a considerable number of nurses, whom it pays partly by yearly wages and partly in proportion to the nursing performed, and also puts by a certain sum towards a pension for them. The society also established Samaritan (Ambulance) Lectures in different towns on first-aid in industrial accidents, and caused placards to be posted at railway stations and seaports containing illustrated instructions for the resuscitation of the apparently drowned or suffocated and the treatment of the wounded until proper medical attendance can be obtained. In 1891 an excellent work, entitled "Denmark: its Medical Organisation, Hygiene, and Demography," was published in English at Copenhagen by a subvention of the Danish Government and presented to the Seventh International Congress of Hygiene and Demography held in London in that year.

A BYGONE BATH.

ONE of the old spas, so popular with Londoners in the eighteenth century, has just been exposed in the course of some building operations in connexion with a new substation for the Electric Parcel Railway in Phoenix-place, Clerkenwell, on the site of the old Cold Bath Fields Prison. In 1697 a spring on land then known as Garliners Farm was found to contain certain medicinal properties, and one Walter Baynes erected a bath-house over it for the treatment of patients suffering from general debility, nervous and scorbutic affections, and various chronic disorders. Those patients too weak to bathe were lowered

into the bath, which was very cold, in a dipping chair. It is a chalybeate spring, and deposits a saline incrustation, or did, if we may credit what we are told. Its supply was 20,000 gallons daily, the water rising in the marble basin to 4 ft. 7 in. The bath house stood in a walled-in garden and continued in use till 1811, when it was sold and the ground covered by some additions made to the prison. It is said that the old tread-wheel stood immediately over the site of the spring. The prison has been pulled down somewhat recently and certain Post Office buildings now occupy part of the site. This bath was not far from "The Bagnigge Wells," for Farringdon-road was originally the Bagnigge Wells-road.

Another interesting relic has also been revealed. The Old Fleet river ran across underneath the prison, and this also has come to light, giving a complete section showing the mottled clay foundation with the banks rising on either side covered with alluvium. The bottom is lined with gravel, probably rolled down from the Hampstead Heights, and over this is spread a thick bed of black mud in which have been found a few Roman sherds, gold pins, the bones of a horse, &c. Above this stratum was some 20 ft. of made ground on which this part of the prison was built in 1830. The main part was built in 1794. The whole of this land once formed part of the residential estate of the ill-fated Lord Cobham, better known as Sir John Oldcastle, who was burned alive for heresy at St. Giles's-in-the-Fields in 1417, and is believed to have been the original of Falstaff. The memory of this good man was retained until recently in Cobham-row, Clerkenwell, since demolished in the construction of Rosebery-avenue.

HEALTH OF BRITISH GUIANA.

THE Blue-Book of this colony for 1913-14, recently presented to Parliament, gives the estimated population as 304,149—157,972 males and 146,177 females. The birth-rate was 34.6 per 1000, as compared with a mean rate for the previous five years of 29.2. The birth-rate per 1000 of the population of each of the several races representing the community was: Europeans other than Portuguese, 10.6; Portuguese, 25.8; East Indians, 33.1; Chinese, 39.1; aborigines, 45.6; blacks, 32.3; and mixed races, 32.1. Of the births registered 59.6 per cent. were illegitimate. The death-rate for persons of white race was 13.1 per 1000 living. The general death-rate in 1913 was 24.2 per 1000 of the estimated population, this comparing most favourably with 29.2 in 1912 and 31.7 in 1911; the mean rate for the previous five years was 31.2. The deaths of children under 1 year of age was in the proportion of 179 per 1000 births, as compared with 190 per 1000 in 1912 and 229 per 1000 in 1911; the mean rate for the previous five years was 212 per 1000. The five principal causes of death throughout the colony were: malarial and other fevers, 17.9 per cent.; bronchitis and pneumonia, 13.1; bowel complaints, 12.7; kidney diseases, 7.8; and phthisis and other forms of tuberculosis, 6.7. Enteric fever is a notifiable disease; during 1913, 433 cases were notified, with 105 deaths. Anti-malaria and anti-mosquito measures are being generally and gradually enforced with visible signs of success. Ankylostomiasis, which has engaged the attention of the medical department for several years, has considerably decreased on the sugar estates, and this is attributed to improved sanitary measures and the erection of latrines. There are five public hospitals in the principal centres of population, and the outlying districts are served by dispensary hospitals and dispensaries. The immigration law also requires the maintenance of hospitals on every plantation on which there are indentured East Indian labourers, and these institutions are available for the treatment of emergency and pauper cases from the general community. There were 667 patients in the public hospitals at the beginning of the year, and 13,283 were admitted during the year, the daily average being 603. There were 1352 deaths. In addition to those admitted to hospital, out-door treatment was given to 46,345 persons. At the Leper Asylum there were 387 patients (266 males and 121 females) when the year began, and during the year 105 were admitted.

MORE LANGUAGE LESSONS FOR OUR TROOPS.

IN these days it is certainly of importance that our army, officers and men, should endeavour to pick up a nodding acquaintance with both French and German; there is no knowing when life may hang upon a prompt remark. The difficulty, of course, is to convey an idea of pronunciation of these languages by English phonetics. Several small pamphlets have already been published with this end in view. We have now before us "Easy German for our Men Abroad and How to Pronounce It," and a corresponding pamphlet on French, both by Captain Keyworth, which make a fairly good effort in that direction. But the vowel sounds are not interchangeable exactly, for the most part, and the movements of tongue

and lips dictate the exact sound produced. It is difficult to get the Englishman to put his lips in speaking. Since Indian troops are fighting side by side with English, "Easy Hindustani," by Colonel Alexander Masters, C.B., with Captain Keyworth, may also be useful. The pamphlets are published by Combridges, 56, Church-road, Hove, price 3d. each.

A CHILDREN'S GUEST HOUSE.

To the Editor of THE LANCET.

SIR,—Will you allow me the courtesy of space in your paper to put before your readers the following project? The Women's Freedom League is opening next month in Nine Elms (one of the poorest parts of London) a guest house for the children of the neighbourhood during the confinement of the mothers. We believe that two great objects will thus be served. First, the mother will get a chance of proper rest at a time when it is most necessary and her mind will be at ease as to the welfare of the other little ones of her family; and, in the second place, the children will be cared for while their mothers are laid up. We feel, with many others, that at this time of national crisis the future of England must not be handicapped by neglect of the future men and women. The time when our men are fighting and dying for our country is the very moment when those who stay at home should not only think for the future but also act.

The guest house will be worked by voluntary helpers and run in connexion with our penny dinner restaurant, which supplies on an average 250 dinners daily, and has more than justified its five months' existence. But money is needed for the rent of the guest house, its furnishing, and upkeep. I earnestly beg those who have the welfare of the women and children of the nation at heart to help us with funds, that not only in this district, but in many other parts of London and our great cities, these guest houses may be opened.

I am, Sir, yours faithfully,
C. DESPARD.

2, Currie-street, Nine Elms, S.W., March 15th, 1915.

AMBULANCE WORK IN INDIAN MINES.

THE Kolar Goldfield special centre of the St. John Ambulance Association has just made a donation of Rs.1278/1/- to the St. John Ambulance War Fund for providing comforts for the sick and wounded soldiers. This centre is one of the most active in India, and does an immense amount of useful work in the mines. It has its own ambulance competitions for trophies presented by the Mining Board, and is up to date in every particular.

COMPARATIVE POSOLOGICAL TABLES.

SOME useful "Posological Tables of the British Pharmacopœia, 1914" have been issued by Messrs. Jewsbury and Brown, of Ardwick Green, Manchester. The articles included in the Pharmacopœia, 1914, are listed in alphabetical order with the authorised dose in both metric and imperial measure, and the percentage strength. In parallel columns are given the dose (imperial measure only) and the percentage strength of the corresponding preparations in the Pharmacopœia, 1898. The book, which is a convenient size for the waistcoat pocket, is neatly covered in red canvas binding.

Cheval.—Either of the small cars would be satisfactory, but our leaning is towards the Singer. The Morris-Oxford is another good car on similar lines.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 17th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 11	29.98	S.W.	0.02	57	50	39	43	44	Raining
" 12	30.18	N.E.	...	63	50	44	45	45	Overcast
" 13	30.17	WNW	...	57	48	41	42	42	Fine
" 14	30.20	W.	...	79	59	42	43	45	Hazy
" 15	30.24	W.	...	57	52	43	45	47	Overcast
" 16	30.15	N.	...	57	49	43	43	44	Overcast
" 17	29.93	S.	...	55	49	44	43	46	Overcast

The following magazines, journals, &c., have been received:—Indian Journal of Medical Research, American Journal of Medical Sciences, Surgery, Gynecology and Obstetrics, Tropical Diseases Bulletin, Maryland Medical Journal, Journal of Nervous and Mental Diseases, Aberdeen University Review, American Journal of Roentgenology, Symons's Meteorological Magazine, British Journal of Dental Science, Canadian Journal of Medicine and Surgery.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Prof. B. Moore and Mr. W. G. Evans: On Forms of Growths resembling Living Organisms and their Products Slowly Deposited from Meta-stable Solutions of Inorganic Colloids.—Prof. B. Moore: The Production of Growths or Deposits in Meta-stable Inorganic Hydrosols.—Mr. H. Onslow: A Contribution to our Knowledge of the Chemistry of Coat-colour in Animals and of Dominant and Recessive Whiteness (communicated by Dr. F. G. Hopkins).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

WEDNESDAY.

The Council Club will dine at 7.30 P.M., at the Café Royal, Regent-street, W., and Members who desire to be present are requested to notify Mr. MacAlister not later than Monday, March 22nd.

THURSDAY.

SECTION OF NEUROLOGY (Hon. Secretaries—T. Grainger Stewart, H. Campbell Thomson): at 8.30 P.M.

Mr. J. Herbert Parsons: The Psychology of Traumatic Amblyopia following Explosion of Shells.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—Philip Turner, J. D. Rolleston, Sidney Gifford): at 4.30 P.M.

Cases:

Dr. E. G. L. Goffe: Four Cases of Ichthyosis in a Family of Six Children.
Dr. Edmund Cautley: Pulmonary Regurgitation.
Dr. Reginald Miller: Inherited Syphilis with Wassermann Reactions.
Dr. J. L. Bunch: (1) Ichthyosis associated with Long standing Superficial Ulceration of the Tongue; (2) Verrucae of Cheek.
Mr. Philip Turner: Diffuse Carcinoma of the Peritoneum in a Girl aged 14 Years.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—4.30 P.M., Lady Lugard: The Work of the War Refugees' Committee.

HUNTERIAN SOCIETY, Barbers' Hall, Monkwell-street, E.C.

WEDNESDAY.—9 P.M., Annual Discussion on Recent Developments in Psycho-Therapeutics (introduced by Dr. T. B. Hyslop).
Dr. C. Miller, Dr. M. Wright, Dr. M. Bramwell, Dr. A. Buchanan, and others will take part in the discussion.

CHILD STUDY SOCIETY LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—6 P.M., Mr. C. E. Wallis: The Care of the Teeth (illustrated by lantern slides showing School Dental Treatment in London). 7.30 P.M., Annual Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Lumsden Lecture:—Dr. S. Martin: Non-ulcerative Infections of the Colon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Arris and Gale Lecture:—Dr. F. Wood Jones: The Influence of the Arboreal Habit in the Evolution of the Reproductive System.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynaecological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

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ON

THE NEW PSYCHIATRY.

Delivered before the Royal College of Physicians of Edinburgh
on March 8th, 10th, and 12th, 1915,

By W. H. B. STODDART, M.D. LOND.,
F.R.C.P. LOND.,

LECTURER IN MENTAL DISEASE, ST. THOMAS'S HOSPITAL, ETC.

ABSTRACT OF LECTURE II.¹

(Delivered on March 10th.)

PSYCHO-ANALYSIS.

MR. PRESIDENT AND GENTLEMEN,—Psycho-analysis is a method of obtaining a complete history of the patient's illness and an insight into his modes of thought, such as can be obtained in no other way. A detailed history of a mental disorder includes an account, not only of the manifest disturbances of conduct, but also of the patient's thoughts in association therewith and of the various experiences and events which led up to it, together with their bearings on one another from the patient's point of view. When all this has been ascertained it becomes necessary to trace the patient's particular habits of thought back to their origin. Psycho-analysis achieves this result by reviving his memory for numerous incidents and events which he had forgotten, and by unearthing his hidden, repressed, and therefore unconscious, complexes. The relationship of these with the present disease is then discussed in such a way as to place these complexes in their true light, this being in reality a kind of re-education whereby the patient acquires self-realisation and develops his character and personality.

It is a duty for every physician who contemplates using the method either to be psycho-analysed or to psycho-analyse himself, so that he shall not read his own complexes into his patients. The process is not easy, even for those who have far greater experience of the method than I have, and it takes a very great deal of time. It is customary to spend with each patient an hour a day five times a week. It then takes a fortnight to obtain a complete history and a clear insight into the nature of the case and at least three months to accomplish a cure. Most cases take longer than this, and even Freud himself, purposely selecting very difficult cases, has spent as much as three years over a single patient before he effected recovery.

CASES SUITABLE FOR PSYCHO-ANALYTIC TREATMENT.

"What patients are suitable for psycho-analysis?" The patient must be intelligent. He must have some pretence to education, and I do not recommend the employment of this method with the labouring classes, although successful analyses have been reported. Similarly it is not wise, at any rate for a beginner, to attempt the analysis of young children, as it requires very special tact.

Also the patient must be willing to coöperate with you. You cannot analyse a patient who does not wish it. It is true that it is quite possible to learn much about his complexes by conversation and critical observation, but you will be unable to reveal them satisfactorily to himself. Then there is the type of patient who proclaims that he is perfectly willing to be analysed, but when the work has well begun he does not take

it seriously and plays his part in a desultory way. Such patients flit from one doctor to another, always dissatisfied with the last, and expect to be cured without making any effort themselves. All such patients should be left severely alone. Lastly, it is practically useless to attempt psycho-analysis on a patient who has passed middle age. At best, the analysis of a person who has passed his fiftieth year is sure to be lengthy.

In order to render clear what classes of mental disorder are suitable for analysis let me first explain how I classify them.

1. *The Neuroses*.—Neurasthenia, the anxiety neurosis, some forms of hypochondriasis.
2. *The Psychoneuroses*.—Hysteria, the compulsion neurosis, obsessions, morbid fears.
3. *The Psychoses*.—Maniacal depressive insanity, dementia præcox, paranoia.
4. *Confusional Insanities*.—Exhaustion insanities (from overwork, worry and mental shock), infection insanities (including febrile and post-febrile delirium), toxic insanities (from alcohol, haschish, belladonna).
5. *Thyroïgenous Insanities*.—Myxedema, exophthalmic goitre, cachexia strumipriva, cretinism.
6. *Epileptic Insanities*.
7. *Organic Insanities*.—From cerebral thrombosis, tumour, aneurysm or abscess, acute and chronic meningitis, general paralysis, Huntington's chorea.
8. *Chronic Cortical Atrophy*.—Insanities of involution (abiotrophic), arteriopathic dementia (syphilitic, senile, and renal).
9. *Congenital Mental Defect (Amentia)*.—Idiocy, imbecility, backward children, and so on.

[Here Dr. Stoddart gave his reasons for considering the last six groups unsuited for treatment, save certain forms of epilepsy and alcoholism, while the first three groups were all of interest to the medical psychologist. He proceeded, reversing the order:]

Maniacal-depressive insanity is a psychosis characterised by attacks of mania and melancholia, and it may be taken as a general rule that no attempt should be made to analyse these patients during the course of one of their attacks. A maniacal patient is in too excited a condition to coöperate, and psycho-analysis during an attack of melancholia tends to make the patient worse. The analysis should be undertaken between the attacks, and many medical psychologists have come to the conclusion that the analysis should not be pushed too far. A partial analysis of a few hours laying bare the most obvious of the patient's repressed complexes, which are very near the surface, is often sufficient to effect a permanent recovery; whereas anything like a complete Freudian analysis only does harm. Some of the most experienced psycho-analysts, however, disagree with me on this point. I ought to say that the psycho-analyst may often obtain a hint as to the nature of these complexes by a careful study of the patient's conduct, delusions, and apparently incoherent remarks during an attack; but the analysis itself should be postponed until the attack is over. Most of the cases of dementia præcox are too inaccessible mentally, while some of the earlier cases are too accessible, by which I mean that within a week of starting the analysis the patient has flooded you with an enormous tangle of repressed sexual complexes out of which there seems to be no possibility of escape. The most favourable cases are those of katatonia. I must warn the beginner against cases of dementia paranoides for his own sake. Negative transference, which I explain later, is liable to be set up and may induce the patient to inflict actual bodily injury upon his doctor, which may go as far as murder.

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¹ Lecture I, was published in THE LANCET of March 20th, p. 583. No. 4778.

The same state of affairs may arise in the analysis of cases of paranoia, where we also encounter the difficulty that the patient suffers from a systematised delusional state on which he bases his whole attitude to the outside world, and refuses to believe that there is anything amiss with his mentation.

In Class 2 we come to the cases in which psycho-analytic treatment is pre-eminently satisfactory, though hysterical patients can be cured by other means. For psychasthenia, however, imperative ideas, obsessions, morbid fears, irrepressible thoughts and morbid impulses there is no other treatment than psycho-analysis, which is remarkably efficient and satisfactory. But, of course, no psycho-analyst claims that his method is infallible, even in cases of hysteria and psychasthenia.

The disorders of Class 1 are also suitable for psycho-analysis, but it is soon found that a complete psycho-analysis is unnecessary because the cause of the trouble is readily found and appropriate advice can be given accordingly. I shall refer to such matters in my next lecture.

TECHNIQUE.

[Dr. Stoddart next considered the technique, warning his hearers that the method made great demands on the doctor's time and sometimes on the patient's purse.]

The patient is first systematically examined and a provisional diagnosis made. All defects in physical health are remedied, such as errors of refraction, carious teeth, sources of septic infection, nasal obstructions, and so forth. When it has been decided that the patient is a suitable case for psycho-analysis he is directed to sit in a comfortable armchair by the consulting-room table more or less facing the doctor. This is my own method, but some physicians arrange that the patient shall face another way, so as not to be distracted by his examiner's changes of expression. Freud himself recommends that the patient lie on a comfortable couch and that the physician sit at the head of it so that the patient cannot see his face. Many physicians begin with an association experiment with the use of a galvanometer, sphygmograph, and stethograph, but in an ordinary patient all these instruments are mere accessories. A list of quite ordinary words, usually about a hundred, is read one by one to the patient. These are known as "stimulus words," and the patient is required to react to each in succession by stating the first word that comes to his mind in association with the stimulus word. The physician works with a stop-watch, and the patient is required to react as quickly as possible; a normal reaction takes about two seconds. Opposite each stimulus word the psycho-analyst writes the "reaction word" and the time taken by the reaction. I append here a list of suitable words, but it is as well for the doctor to introduce here and there words which appear to have some bearing upon the patient's own malady.

Quiet	Law	Correct	To play	Despise
Wall	Trouble	Pencil	Threaten	Tooth
Journey	Whisky	Woods	Habit	Book
Bible	Justice	Yellow	Dance	Wild
Apple	Work	Dream	Afraid	Box
Salt	Lion	Insolent	Child	Thirsty
Tobacco	Hammer	Ride	Sing	Hard
Cottage	Crowd	Soldier	Frog	Moon
Love	Paint	Thief	Proud	Glass
Sorrow	Rent	Green	Wool	Sympathy
Sheep	Ring	Joy	Doctor	Street
Water	To listen	Quarrel	Brother	Harm
False	Kiss	Choose	Men	To tell
Wash	Policeman	Deep	Health	Boy
Rich	Soft	Mouth	Mountain	Table
Dark	Stork	Anxiety	Rough	Duty
Window	Luck	Friend	Bed	Ink
Wish	Foot	Smooth	Girl	Carpet
Dog	Change	Dirty	Blood	Knee

These words are read through a second time and the associations again noted, but it is not necessary to record the reaction time on repetition.

The physician now searches his results for what are known as "complex-indicators." These are: (1) Undue prolongation of the reaction time—4 seconds or more; (2) failure to react to a word; (3) strange and incoherent associations; (4) apparent contradictions; (5) perturbation of several reactions following a certain association; (6) failure to react with the same word on repetition of the test; (7) accompanying motor and vaso-motor phenomena, such as restlessness, lip-biting, nail-picking, blushing, &c.; (8) increase of frequency of the pulse and respiration; and (9) the generation of weak electrical currents by the body, or, if a cell is introduced into the circuit, alteration of the electrical resistance of the body. By a little detective work it is often possible to make a shrewd guess at some of the patient's repressed complexes; but your own conclusions should never be communicated to the patient. It is legitimate to ask him a question which forces him to admit something that he is obviously withholding, but it is not permissible to do more than this.

The various "complex-indicators" just mentioned are due to intrapsychic "resistances." Some of these are between the preconscious and the conscious, and constitute resistance to a disclosure of the complex to you. Others are between the unconscious and the preconscious, and constitute a resistance to disclosing an unconscious complex to the patient's own consciousness, and incidentally to you. These "resistances" have to be overcome, and the method is to take each of the associations which have revealed themselves as complex-indicators and get the patient to explain them. This he can very readily do with many of his associations by relating some incident in his past experience. Some will prove valueless and be discarded, others worth noting. Some of his associations, however, will turn out to be a puzzle to himself. These are important and should be followed up. What is called "continuous association" may first be tried, the patient being told not to stop at the first association, but go on from one word to another until some light is thrown on the first association; or the particular reaction may be used as a starting point for a "free association" to be described presently. If during a series of continuous associations the patient comes to a stop, a block, a resistance, he should be urged to find an association. You say to him, for example, "Go on, you must think of something!" Then, after a short pause, especially when he shows some motor restlessness, "What is in your mind now? You must tell me." In this way you work through all the reactions and by the end of the test you have a very fair amount of material to work upon.

Free Association: Overcoming Resistances.

The method of "free association" is conducted in much the same way, except that no stimulus words are given. The patient is directed to make himself quite comfortable and to assume a passive, inert frame of mind. He is then told to allow his thoughts to flow as they will, and to exercise no control of them whatever. As they flow in this way he is to speak everything that comes to his mind; no matter how incoherent his speech may seem and no matter how painful or repugnant the thought may be, he must speak it out. He is to allow his thought and speech to run wild. In this way his associations will here and there tap the unconscious. After a few sittings you can sometimes tap the

unconscious almost as soon as he enters the consulting room by making some utterance which calls for no special reply, such as "Yes?" or "Well?" and waiting for him to speak. It may seem ungracious or unceremonious that you should not enter into the conversation, but you must let him do all the talking.

In the course of a free association you will again come across "resistances." The patient will tell you that his mind is a blank and that he can think of nothing. You reply, "Never mind! go on talking." Or he will become silent. Your reply is to become silent too. You wait for seven or eight minutes sometimes, looking at him expectantly the whole time until something comes up from the unconscious; or you interrupt the silence suddenly with "Talk! what is the matter with you? Go on talking!" or, at the slightest sign of restlessness, you say, "What are you thinking of now? Why don't you tell me?" These resistances are difficult to describe because they vary so much with different patients. I have seen a patient fall over the side of the chair, as if collapsed, remarking "Oh doctor! what are you doing to me?" a patient, mind you, who went about his business during the rest of the day as if there were nothing the matter with him, although he was constantly tormented by psychomotor hallucinations and other symptoms.

From time to time it is well to recapitulate to the patient what he has told you and get him to draw his own conclusions as to the nature and cause of his malady. I wish to insist a little on this point, that he tells you and that you do not tell him, because the critics like to say that the psychoanalyst puts suggestions into the patient's mind. It is true that the patient will sometimes ask, "Is that right, doctor?" to which my usual reply is, "Of course it is right, because it is your mind that has come to this conclusion, not mine, and the malady is yours, not mine." Sometimes, of course, it is necessary to counteract some absurd conclusion, but I have found that such conclusions usually originate in a suggestion given to the patient by another person. Beginners in psycho-analysis are liable to make this very mistake. They tell the patient their conclusions as to the nature of his complexes before he has discovered them for himself. These are what Freud has termed the "wild psychoanalysts." Sometimes their conclusions are correct, sometimes incorrect. One patient of mine told me that a certain doctor after one week's analysis informed him that he was in love with his mother, to which, not understanding what was meant, he replied, "Of course I'm in love with my mother." Now it happens that the doctor was right; the patient's libido was unconsciously fixated on his mother, so much so that although the patient was 40 years of age and had been in love many times, he could never bring himself to marry the girl of his choice. Psycho-analysis, as a method of bringing hidden complexes to light, has been compared to opening an abscess; but this doctor's method was more like hitting an abscess, not opening it.

I can here foresee an objection that there is no need for the psychologist if he is not allowed to supply interpretations of the patient's data or even to engage in conversation, and I have indeed had the experience of a patient who, while admitting her recovery, remarked, "But I do not see what you have done." I accepted that as a very great compliment.

As a matter of fact, the work of the psychologist is at times very great at overcoming resistances,

which sometimes last for several sittings. One form of resistance for which you must be on the watch is what the Germans call "vorbeireden"—as we should say, "talking past the point." The patient suddenly becomes loquacious and hurries past a certain association, just as a hostess at a dinner-party may suddenly become talkative and change the conversation, knowing that it is getting dangerously near a tender subject for one of her guests. The analyst's duty is the reverse of this. He brings his patient back to the point, discusses it right out, and perhaps starts a new series of associations. Then again it is desirable to encourage associations which promise to revive infantile memories. Such memories are usually strongly visual and difficult to associate with words; it is therefore well on such occasions to ask the patient to close his eyes, to see pictures and to relate what he sees. Indeed, it is helpful in all psycho-analysis that the patient should keep his eyes closed. His mental and bodily attitude should resemble that of going to sleep, in that the mind should be allowed to wander, but there is the difference that the subject's attention is directed to his own psychical activities. Of course, he requires a certain amount of practice before he is able to do this successfully. His part of the work is by no means easy, and many a patient attains peace of mind at the expense of his hair turning grey; not as a result of the difficulty of technique, but as a result of overcoming resistances.

SIGNIFICANCE OF VARIOUS INCIDENTS AND HABITS.

[Dr. Stoddart here considered the interpretation of dreams, which Freud has designated the "royal road" to the unconscious, and which he considered very helpful in psycho-analysis, adding that many suggestions from apparently trifling incidents and habits occurring in the patient's everyday life will also be found valuable. He proceeded:]

A common experience of psychoanalysts is that patients leave some of their belongings after a satisfactory interview. This is an unconscious way of expressing a wish to return for further treatment. People who have displayed a tendency during childhood to pilfer or lie and who still have an unconscious tendency in the same direction, are scrupulously careful to pay for everything "on the nail," as the saying is, or to be excessively precise and truthful whenever they make a statement. A spendthrift usually has all the apparatus for saving money—cash-box, ledger, day-book, and the rest of it—but his unconscious tendency prevents him from using them. These are generalities, but patients and others often supply particular examples of the work of the unconscious. Dr. Bernard Hart quotes a patient, for example, who had an irresistible impulse to examine the number of every bank note which came into her hands. Analysis revealed that this habit dated from an association when she asked a man with whom she was in love to change a coin for her. He complied with her wish, and putting the coin in his pocket said that he would not part with it. This remark raised her hopes that her love was reciprocated and any money passing through her hands always reminded her of the incident. The man passed out of her life, however, and she strove to banish the episode from her memory and to forget that such a desire ever crossed her mind. The repression was successful and the complex was thenceforward only allowed to enter consciousness in disguise—viz., as an interest in money—which became crystallised into her exaggerated pre-occupation with the numbers of bank notes.

Freud has demonstrated that the forgetting of proper names, far from being fortuitous, is always due to the activity of the intrapsychic censor. Whenever a name is forgotten or incorrectly remembered a reason can always be discovered, usually by a quite superficial analysis, why it has been forgotten. Some disagreeable memory is the common cause, associated either with the individual or with a person or place of the same or a similar sounding name. In other words, the forgetting is neither more nor less than a repression. Examples of this occur in everybody's experience every day. I always have a difficulty in remembering the name of a certain town in Italy, Ferrara, where—owing to a piece of foolishness—I had to run for nearly a mile in record time (for me) in order to catch a train in which I had already placed my luggage. The forgetting of resolutions belongs to the same category of unconscious phenomena, the commonest example being that we are more liable to forget having borrowed money than having lent it, although none of us would admit to ourselves that we have dishonest propensities.

The mislaying of objects gives another series of clues to the unconscious. Bills are more apt to be mislaid than cheques. If a cheque is mislaid, you will find that you have a feeling that you have not given sufficient value for the money or that you have failed to declare it to the income-tax authorities, or that you do not like the person who gave it to you, or there is some other unpleasant association with the cheque. Mistakes in speaking, reading, and writing (*lapsus linguae et calami*) belong to the same category. They are betrayals of repressed complexes, and no psychoanalyst allows such a mistake made by himself to pass without searching for the hidden cause of it. Similarly, he always gets his patients to relate to him such symbolic actions, failures of memory, and lapses of the tongue and pen, so that he may investigate them and thus gain access to the unconscious tendencies of his patients.

Perhaps I ought to mention two other methods of tapping the unconscious, which do not, however, belong to psycho-analysis proper—viz., Hypnosis and Crystal-gazing. I prefer if a person is to be psycho-analysed that he should not be hypnotised. Crystal-gazing does not require much practice and is quite easy for a neurotic patient. He is directed to abstract his mind from all normal sensory impressions and to gaze intently into a glass sphere. A black background is preferable, and it is advisable not to have too much illumination. Clouds appear in the ball at first, which advance and retire synchronously with respiration. Then many reflections are unconsciously combined to form an illusory picture, which is at first vague and indistinct. Definite hallucinations then form which ultimately take on movement. These hallucinations represent some forgotten incident of the past life of the individual, with much less distortion than takes place in dreams. The percipient, being detached from surrounding impressions and awake to those of his own sub-conscious self, is probably in a mild state of hypnosis. The patient relates to the physician all that he sees in the crystal ball, and, the memory of some incident having been revived, he is urged to connect it with his present content of consciousness by the association methods already described. The method is not much used, but I have sometimes found it helpful in overcoming resistances in the interpretation of dreams.

THE TRANSFERENCE.

In the first lecture I explained that every constellation of ideas which we call a "complex" is possessed of a certain amount of psychical energy or libido, desire *plus* a conative trend; and it is this libido which usually conflicts with the herd instinct and brings about that mental conflict which secures adjustment by repression of the whole complex into the unconscious. Fixation of the libido in the unconscious may be on the father (Edipus-complex), on the mother (Electra-complex), on a person of the same sex as the patient (homosexual-complex), on a person of the opposite sex who has passed out of the patient's life, or even on an inanimate object (money, for example). When, therefore, by the methods I have described an unconscious complex becomes conscious, this libido becomes conscious too, but this time its object is not available. The method of psycho-analysis has itself divorced the libido from its former object. There is therefore a certain amount of libido, synonymously psychical energy, floating free, so to speak. What becomes of it? Such a state of affairs cannot possibly persist. It becomes attached to, or fixated on, the personality of the physician. This is a stage which must be attained by every patient and is known as "the transference." To some extent a similar feeling of dependence and confidence occurs in every patient, whether he be suffering from heart disease, phthisis, cancer, or any other organic disease; but it is enormously exaggerated in the neuropath who is undergoing treatment.

All Psycho-analysis Proceeds *via* Transference.

Psycho-analysis means using transference for the purposes of treatment, it being the only way in which buried memories can be recovered. It is often difficult to see how on earth certain infantile fixated relationships can possibly be transferred to the physician, but the patient's unconscious mind discovers a way, usually with the help of a dream. When, as commonly happens, the infantile fixation is of a hostile nature the patient's unconscious mind is most insulting to the physician, although superficially he is as polite as ever. Under such conditions, when the transference has been effected, it may be very disagreeable, and indeed dangerous. In patients suffering from delusions of persecution, for example, the patient then regards the physician as his persecutor. Jung of Zürich told me of a patient of his who presented him on recovery with a loaded pistol which, during the stage of transference, was intended to be levelled at him. This is known as "negative transference." It must never be forgotten that during the transference the neurosis is as active as ever. There is a recrudescence of many of the symptoms of the former neurosis with the difference that some earlier person is replaced by the person of the physician. A similar transference on the part of the physician has to be guarded against ("reversed transference" it is called) and is to be avoided by self-analysis.

It is the commonest complaint of neurotic patients that they are not understood, but in the psychoanalyst they have found a man who listens sympathetically, tries to understand them and never gets annoyed by their constantly recurring resistances. The doctor has become a kind of father confessor who has penetrated the secrets of his soul far deeper than any father confessor ever does, while the patient has found a prop against which he may lean for evermore. He considers the

situation ideal, and resists all attempts to alter it, even reverting to all his former phantasies in their new relationship. This is the state in which the father confessor would leave him, but the psycho-analyst must place the patient upon his own feet. In other words, the next stage in the treatment is dissolution of the transference relation. This is the most difficult part of psycho-analysis, because the resistances are as strong as ever. It is to be accomplished in exactly the same way in which the transference relation was produced—viz., by psycho-analysis. In this dream interpretation will again play an important part, for it will now prove a useful guide in our search for the future object of the libido. We must find new interests for the patient and encourage him in them, so that he may come once more into practical relationship with the world around him. During this process all his symptoms crumble away, and in the end he finds himself neither better nor worse than other members of the community around him, but just a normal person.

TYPHOID AND PARATYPHOID INFECTION.*

No. II.—THE DETECTION AND IDENTIFICATION OF B. TYPHOSUS AND B. PARATYPHOSUS.†

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THE problem of the detection of the B. typhosus and the paratyphoid bacilli resolves itself into a question of the application of methods which will reveal the presence of these organisms in mixed cultures of a variety of bacteria even when their relative numbers are very few; as, for example, in the faeces of convalescents or carriers. Where typhoid (or paratyphoid) bacilli are abundant almost any method, from plating high dilutions over large surfaces of ordinary agar to the use of the most elaborate media for the enhancement of the B. typhosus on the one hand, or the inhibition or elimination of its rivals on the other, will render the isolation of these organisms a comparatively simple process. But where they are few negative results are frequently obtained even after repeated examinations of the faeces.

In bringing forward the results described below it is not our object to enter into any detailed criticism of existing methods, many of which have been shown to possess very considerable value for particular purposes. A discussion of their respective merits and demerits does not lie within the scope of our present purpose, which is to point out briefly why negative results obtained by their use are often likely to be entirely misleading where relatively few of the bacilli are present. At the same time we wish to describe a new method of which the essential feature is an exposure of the suspected bacterial material to the influence of

actinic light. This method allows of the examination of much larger quantities than usual of the material in question with very little labour, and has enabled us to detect the B. typhosus or B. paratyphosus at the first examination where examination by other methods had again and again yielded negative results. For example, from a suspected carrier examined elsewhere on five different occasions with negative results, we isolated a few colonies of the B. typhosus at the first examination by the new method, though other methods tried at the same time gave a negative result.

Inhibitory Media.

In examining suspected carriers and in studying the persistence of typhoid and paratyphoid bacilli in the urine and faeces of convalescents from typhoid and paratyphoid fever, we have met with constant disappointment in the results obtained by using the various special media which have been recommended for the purpose. With most of these media the amount of the suspected material which can be worked up for investigation is relatively very small unless the number of platings made is largely increased. Any considerable multiplication of platings is, however, impossible when many examinations have to be carried out within a short period. Thus if only relatively few of the bacilli are present in the material examined they are likely to be missed.

But besides this difficulty, the rate at which typhoid and paratyphoid bacilli frequently appear to vanish during convalescence from faeces which are investigated by these methods forced upon us a suspicion of the possibility that the eliminating substances employed were actually destroying the bacilli sought for as well as those which it was intended to inhibit.

In view of the importance at the present time of retaining convalescent soldiers under observation and control until they cease to act as carriers it is essential that the method used in making examinations should be one in which a negative finding represents as nearly as possible a true negative. And an ideal method would be one where the report "not found" could be accepted as a true equivalent of "not present." But this can never be the case if the media employed are such as may destroy or inhibit the bacilli which are being sought for.

That the method of direct plating on so-called selective media often proves misleading has been shown by various observers, and notably C. H. Browning¹ and his co-workers who found in the course of their important work with brilliant green that direct plating on MacConkey's medium was unsatisfactory. It only enabled them to detect typhoid (or paratyphoid) bacilli in 6 cases out of 13, in all of which they were discovered by their method of "enhancement." Even in this latter method, however, as well as in its later modification by the addition of potassium tellurate² to the fluid used for the primary cultures plating on a special medium follows the enhancement. Accordingly we found it necessary to submit a series of the recognised selective media to actual tests as regards their effect upon the growth of different members of the colityphoid group.

Among the numerous special media which have been proposed the best known are those

* The expenses of this work have been defrayed out of a grant received from the National Medical Research Committee.

† THE LANCET, Feb. 13th, 1915, p. 324.

¹ C. H. Browning, W. Gilmour, and T. J. Mackie: *Journal of Hygiene*, vol. xiii., p. 335; *Journal of Pathology and Bacteriology*, vol. xviii., pp. 144, 146.

² C. H. Browning, T. J. Mackie, and J. F. Smith: *Journal of Pathology and Bacteriology*, vol. xix., p. 127.

of Drigalski and Conradi,³ MacConkey,⁴ Endo,⁵ Lentz and Tietz,⁶ Löffler,⁷ Conradi,⁸ and Fawcus.⁹ Of these media those of Drigalski and Conradi, MacConkey, and Endo were ultimately selected for special quantitative investigation. A very extensive series of experiments has been carried out; but it will be sufficient for our purpose to quote a few typical examples of the results obtained on these media with pure cultures, and with mixtures of pure cultures of *B. typhosus* and *B. coli* in different proportions. The paratyphoid bacilli have also been investigated in a similar manner. Experiments were made by preparing (a) high dilutions of pure cultures of *B. typhosus* and *B. coli* and (b) known mixtures of these pure cultures, and comparing the number of colonies of the two organisms which grew after plating on the surface of agar plates with the number of colonies obtained from the same quantity of the same dilution on the surface of plates of the three special media named.

We have not found in the literature that exact quantitative tests of the viability of typhoid, paratyphoid, and colon bacilli on such media have previously been made. Our results seemed so surprisingly contrary to expectation that the experiments were many times repeated for complete confirmation. The outstanding conclusion is that all these media eliminate a very large proportion of typhoid (and even paratyphoid) bacilli, and do not to any very notable degree inhibit the growth of *B. coli*. In saying this we do not at the present time at all intend to suggest that such media as those of Endo, MacConkey, and others are not excellent for the differentiation of these micro-organisms and for separating them when sufficiently abundant from a variety of intestinal and other organisms by selective elimination. But we maintain that for the isolation of typhoid and paratyphoid bacilli where they are relatively few in numbers, as in drinking water, in carriers, and in convalescent cases, their use is entirely misleading as regards the value of a negative finding.

Before giving figures for some typical quantitative experiments it is of interest to draw attention briefly to the results obtained by inoculating from pure cultures of typhoid, paratyphoid, and colon bacilli on plates of MacConkey's and Endo's media and ordinary agar. In each case the needle was charged from a single isolated colony and a streak was made on the surface of each medium in succession, beginning with MacConkey's medium and ending with the ordinary agar without recharging the needle. One example for each organism is given in Table I.

In other cases a series of mixtures of pure cultures of *B. typhosus* and *B. coli* in different proportions was prepared (e.g., 1 to 1, 1 to 5, 1 to 10, 1 to 15, &c.), and from these streaks were made on a series of media by means of a platinum needle recharged for each medium. The *B. typhosus* was not found on Drigalski and Conradi's medium or on MacConkey's medium when present in a mixture in a less proportion than 1 typhoid to 10 colon bacilli.

In the case of Endo's medium (and the medium of Lentz and Tietz) the *B. typhosus* was recovered from mixtures of 1 typhoid to 15 colon bacilli, but not from any lower proportion of typhoid to colon bacilli.

TABLE I.

Medium.	Experiments		
	(a) <i>B. typhosus</i> .	(b) <i>B. paratyphosus</i> (B).	(c) <i>B. coli</i> .
MacConkey's medium...	Slight growth.	Fair growth.	Rich growth.
Endo's medium	Slight growth.	Marked growth.	Very rich growth.
Ordinary agar '... ..	Luxuriant growth.	Luxuriant growth.	Luxuriant growth.

Quantitative Experiments.

The dilutions were carried out with accurately graduated pipettes, and were made with sterile bouillon of the same batch as that in which the cultures were grown. The platings were always made with 20 c.mm. of the diluted culture (or mixture) measured by means of calibrated capillary pipettes. The fluid was placed on the surface of the medium and carefully spread over the whole area by continued gentle rubbing to and fro with a thinly drawn Pasteur pipette the last inch of which was bent at a right angle after sealing and turning up the end. The plates employed were Petri dishes of 9 cm. diameter and always contained the same amount of medium. The various media used in each set of experiments were prepared at the same time, and plates for each set were poured at the same time and were brought into use together after standing at the room temperature for a period of 8 to 24 hours.

TABLE II.—Showing the Number of Colonies which Grew on the Various Media in Experiments made with Various Known Dilutions of Pure Cultures of *B. Typhosus* and *B. Coli* respectively. (The experiments denoted by the same number were made at the same time in each case.)

Medium.	Number of colonies on plates inoculated with <i>B. typhosus</i> 20 c.mm.			Number of colonies on plates inoculated with <i>B. coli</i> 20 c.mm.		
	Experiments			Experiments		
	(1)	(2)	(3)	(1)	(2)	(3)
Ordinary agar	265	150	90	1100	550	86
Endo's medium	245	135	85	1000	500	60
MacConkey's medium	2	1	0	950	450	70
Drigalski-Conradi medium...	2	0	0	1050	500	64

The above table shows clearly that when relatively small numbers of typhoid bacilli are plated out they may entirely fail to grow on MacConkey's and the Drigalski-Conradi medium, even when there are from one to two hundred bacilli viable on ordinary agar present. Endo's medium, on the other hand, grew the great majority of the viable typhoid bacilli. This, however, is not the case unless the plates of Endo's medium are only very moderately dried before use. If Endo-plates and ordinary agar plates are allowed to stand for two or three days before use the Endo's medium becomes relatively very much more unfavourable. Thus in one case with 457 colonies on agar there were only 140 colonies on Endo's medium, and in another case with 100 colonies on agar only 4 of the bacilli grew on Endo's medium. As regards the *B. coli*, it will be observed that of the organisms viable on ordinary agar the great majority grew on all the media, though in this respect our general experience has been that MacConkey's medium is usually the least favourable of the three.

³ Drigalski and Conradi: Zeitschrift für Hygiene (1902), vol. xxxix, p. 283.

⁴ MacConkey: Thompson-Yates and Johnston Laboratory Reports, vol. iii., part 3, pp. 40 and 151; vol. iv., part 1, p. 151; Journal of Hygiene, vol. v., p. 333; vol. viii., p. 322; vol. ix., p. 86.

⁵ Endo: Centralblatt für Bakteriologie und Parasitenkunde, Originale, vol. xxxv., S. 109.

⁶ Lentz and Tietz: Münchener Medizinische Wochenschrift, vol. 1., p. 2139.

⁷ Löffler: Deutsche Medizinische Wochenschrift, 1903, No. 36, Vereinsbeilage.

⁸ Conradi: Centralblatt für Bakteriologie und Parasitenkunde, Beilage zu Abteilung 1, vol. xlii., Referate, S. 47.

⁹ Fawcus: Journal of the R.A.M.C., vol. xii., p. 147.

TABLE III.—Showing the Number of Colonies of *B. Typhosus* and *B. Coli* respectively which Grew from Mixtures made at the Same Time from the Same Cultures so as to contain (A) 3 *B. Coli* to each *B. Typhosus* and (B) 149 *B. Coli* to each *B. Typhosus*. (The mixtures were diluted 1/62500 before plating.)

Medium.	A 3 <i>B. coli</i> to each <i>B. typhosus</i> . 20 c.mm.		B 149 <i>B. coli</i> to each <i>B. typhosus</i> . 20 c.mm.	
	Typhoid colonies.	Coli colonies.	Typhoid colonies.	Coli colonies.
Ordinary agar... ..	133	430	1	500
Endo's medium	120	400	0	450
MacConkey's medium... ..	1	460	0	420
Drigalski-Conradi medium	0	303	0	400

Here it appears that even when there is one *B. typhosus* to every three *B. coli*, and there are upon the plates almost the extreme number of colonies which will usually allow of certain differentiation, only a single typhoid colony appeared on MacConkey's medium and none on the Drigalski-Conradi medium.

Experiment B shows how, as the dilution of the *B. typhosus* with *B. coli* increases, the number of *B. typhosus* found even on an ordinary agar plate diminishes below the expectation, only one colony being found instead of three. This we have found to be our regular experience.

TABLE IV.—Showing the Number of Colonies of *B. Typhosus* and *B. Coli* respectively which Grew from Mixtures made at the Same Time from the Same Cultures so as to contain (C) 1 *B. Coli* to each *B. Typhosus*, and (D) 19 *B. Coli* to each *B. Typhosus*. (The mixtures were diluted 1/62500 before plating.)

Medium.	C 1 <i>B. coli</i> to each <i>B. typhosus</i> . 20 c.mm.		D 19 <i>B. coli</i> to each <i>B. typhosus</i> . 20 c.mm.	
	Typhoid colonies.	Coli colonies.	Typhoid colonies.	Coli colonies.
Ordinary agar	100	132	4	150
Endo's medium	75	114	3	136
MacConkey's medium ...	1	121	0	161
Drigalski-Conradi medium	2	75	0	152

Here it is seen that only when the number of *B. typhosus* present approximately equals the number of *B. coli* are any colonies of *B. typhosus* found on MacConkey's or the Drigalski-Conradi medium. Observations such as those recorded in Tables II., III., and IV. are typical examples of the results obtained in numerous experiments with different media recommended for the isolation of the *B. typhosus*. They are sufficient to explain the fact (emphasised most recently by Browning, Gilmour, and Mackie in the case of MacConkey's medium) that primary platings on selective media frequently fail to yield colonies of *B. typhosus*, even when that organism is undoubtedly present. If a selective medium is employed at all at any stage of the isolation and identification of *B. typhosus*, the medium of Endo is to be recommended. The results with that medium in the tables shown are good. But this will only be the case, as already stated, if the medium is very carefully managed as regards its relative moisture.

For purposes of cultural discrimination between *B. coli* and *B. typhosus* Endo's medium constitutes the most beautiful differential medium with which we are acquainted. The colonies of *B. coli* are

well developed, of a deep red colour, and gradually acquire an intense metallic sheen, while those of *B. typhosus* are at first only faintly rosy in colour, and though they eventually become red they never acquire any metallic lustre.

TABLE V. (Mixture A).

Enhancement.	Medium.	Streak.	Colon.	Typhoid.
a.	Ag.	1	Continuous growth.	1 isolated colony found.
		2	Numerous isolated colonies.	No colonies.
		3	Isolated colonies.	2 isolated colonies.
	E.	1	Continuous growth.	No colonies found.
		2	Fairly continuous growth.	3 isolated colonies.
		3	12 colonies.	8 colonies.
β	M'C.	1	Continuous growth.	No colonies found.
		2	Continuous growth at first, then isolated colonies.	No colonies found.
		3	Isolated colonies.	No colonies.
	Ag.	1	Numerous isolated colonies.	More numerous isolated colonies.
		2	No colonies.	No colonies.
		3	No colonies.	1 colony.
γ	E.	1	Continuous growth at first, then isolated colonies.	18 isolated colonies towards end.
		2	1 colony.	1 colony.
		3	No colonies.	No colonies.
	M'C.	1	Numerous isolated colonies.	2 colonies.
		2	3 colonies.	No colonies.
		3	2 colonies.	No colonies.
γ	Ag.	1	13 colonies.	4 colonies.
		2	No colonies.	No colonies.
		3	No colonies.	No colonies.
	E.	1	2 colonies.	18 colonies.
		2	No colonies.	No colonies.
		3	No colonies.	No colonies.
γ	M'C.	1	A number of isolated colonies.	2 colonies.
		2	3 colonies.	No colonies.
		3	No colonies.	No colonies.

Ag. = Ordinary agar. E. = Endo's medium.
M'C. = MacConkey's medium.

TABLE VI. (Mixture B).

Enhancement.	Medium.	Streak.	Colon.	Typhoid.
a.	Ag.	1	Continuous growth.	No colony found.
		2	Numerous separate colonies.	1 colony.
		3	12 colonies.	No colonies.
	E.	1	Continuous growth.	No colony found.
		2	Numerous partly fused colonies.	1 colony.
		3	Isolated colonies.	1 colony.
β	M'C.	1	Continuous and broken line of growth.	No colony found.
		2	Numerous partly fused colonies.	No colonies.
		3	Isolated colonies.	No colonies.
	Ag.	1	30 colonies.	2 colonies.
		2	3 colonies.	No colonies.
		3	No colonies.	No colonies.
γ	E.	1	Closely set separate colonies.	4 colonies.
		2	5 colonies.	2 colonies.
		3	5 colonies.	1 colony.
	M'C.	1	20 colonies.	No colonies.
		2	No colonies.	No colonies.
		3	3 colonies.	No colonies.
γ	Ag.	1	13 colonies.	2 colonies.
		2	1 colony.	No colonies.
		3	No colonies.	No colonies.
	E.	1	6 colonies.	1 colony.
		2	No colonies.	No colonies.
		3	No colonies.	No colonies.
γ	M'C.	1	■ colonies.	No colonies.
		2	No colonies.	No colonies.
		3	No colonies.	No colonies.

Ag. = Ordinary agar. E. = Endo's medium.
M'C. = MacConkey's medium.

The Method of Enhancement.

It is no part of our present intention to discuss in detail the brilliant-green enhancement method of Browning, Gilmour, and Mackie. In their hands, and in those of other observers, it has yielded very satisfactory results. Besides its action in the enhancement of the *B. typhosus*, the use of brilliant green has the advantage of exerting a bactericidal action on Gram-positive organisms. This action of the group of dyes to which brilliant green belongs was first demonstrated by two of us in work carried out with Kriegler^{10,11} and with S. G. Scott.¹² It has been fully confirmed by Browning and his co-workers, as well as by Krumwiede and Pratt¹³ and others. Browning, Gilmour, and Mackie further showed that brilliant green, which contains four ethyl groups in place of the four methyl groups of malachite green, is more favourable to the enhancement of the *B. typhosus* than the latter, which had been used by Löffler, Lentz and Tietz, and others.

As regards the practical utility of the brilliant-green enhancement method (which would be employed in preference to the later method with potassium tellurate¹⁴ added where there was possibility of the presence of *B. paratyphosus* (B)) we venture to suggest a modification. Browning plates out the enhanced cultures on MacConkey's medium. If they are plated out on Endo's medium or on ordinary agar instead, the chance of finding *B. typhosus* or paratyphoid bacilli, if present, is very greatly increased, as the following observations show.

Of the undiluted mixtures A and B in Table III. 20 c.mm. were added to two series of brilliant-green peptone-water tubes according to the method of Browning, Gilmour, and Mackie. Each tube contained precisely 5 c.c. of the medium. After 24 hours' growth at 37° C. the cultures were plated on ordinary agar, Endo's medium, and MacConkey's medium by making three successive strokes on each medium with a narrow loop. The loop was recharged for each plate. The results from three different strengths of brilliant green (1/10,000 solution 0.15, 0.4, and 0.8 c.c., indicated by α , β , and γ respectively) are shown in Tables V. and VI.

What Table V. shows is that, in accordance with the quantitative estimates given in previous tables, MacConkey's medium is inferior to Endo's medium and to ordinary agar for the detection of the *B. typhosus* after enhancement. Its use may lead to negative findings even when typhoid bacilli are actually present in some numbers.

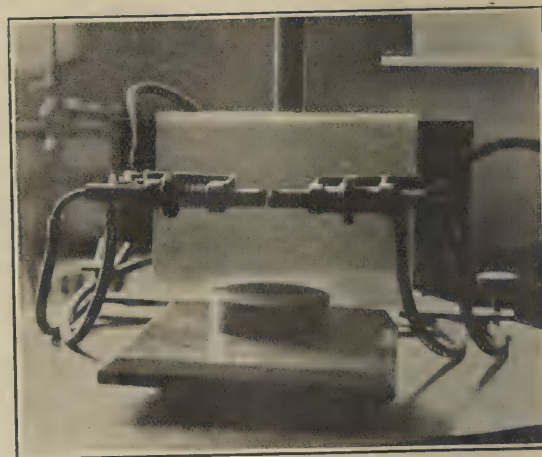
Table VI. again shows the disadvantage of plating on MacConkey's medium after the enhancement. In all three cases the *B. typhosus* failed to appear on plates of this medium, although it was found both on Endo's medium and on ordinary agar. It may be added that on diluting the brilliant-green peptone-water culture β of Table VI. to 1/250 and plating out 20 c.mm. of the dilution by spreading on the surface of poured plates of ordinary agar, Endo's medium, and MacConkey's medium, about 100 colonies of *B. coli* were found on each medium, with two colonies of *B. typhosus* on the agar, one colony on Endo's medium, and none upon MacConkey's medium. Thus, as the result of the enhancement the relative number of *B. coli* had

decreased and the number of *B. typhosus* had increased both relatively and absolutely. The ratio found on plates before enhancement was 1 *B. typhosus* to about 500 *B. coli* (see Table III., B), but had now become 1 or 2 *B. typhosus* to each 100 *B. coli*.

The Light Method.

Although the method of enhancement has yielded excellent results, it has the drawbacks that a considerable number of enhancing cultures are required to make sure of including the most favourable concentration of brilliant green, and that it lengthens the process of isolation by some 24 hours. In the method which we are now about to describe relatively large quantities of the suspected material are

FIG. 1.



The lamp employed by the authors for exposure of the agar plate to the arc light.

worked up for examination and isolated colonies of *B. typhosus* or *B. paratyphosus* (A) or (B) may be obtained within 12 to 24 hours by the use of a single plate. The method was devised by one of us (G. D.) and is based on the experience of numerous previous investigations on the biochemical action of actinic light. It consists in the subjection of an ordinary agar plate liberally spread with the bacterial emulsion to a graduated exposure to the rays of an arc light. The arc formed between silver electrodes has so far given us the most satisfactory results.

Technique.

The illustration (Fig. 1) shows the lamp which we employ. It consists of two small metal pillars bracketed upon an insulating slate base. The pillars carry the horizontal arms upon which electrodes, water-cooled in the manner devised by Bang, are screwed. These arms can be approximated to each other by means of thumb-screws. They consist of an outer tube within which runs a smaller inner tube serving as inflow for the cooling water which returns by the outer tube.¹⁵ The arc is made by an electric current of 5 to 7 ampères with a voltage of 30 to 35 volts. The cooled electrodes give a perfectly cold arc light whose action is entirely free from any heat effect. In exposing an inoculated plate the lid is removed and the agar surface is directly exposed to the arc at a distance of about 6 cm. Upon the Petri dish is placed a sheet of blackened metal (or cardboard) in which an oblong window has been cut. By means of another sheet of blackened metal the window, which is at first fully open, is gradually closed. The different exposures given along the strip of window may with advantage be 30, 60, 90, 120, 150, 210, and 240 seconds, with a current of 7 ampères and 30 volts. In making such a plate from 0.5 to 1 c.c. of faeces are broken down in 2.5 c.c. bouillon and allowed to stand for about two hours. Two or three large

¹⁰ Dreyer, Kriegler, and Ainley Walker: *Journal of Pathology and Bacteriology*, vol. xv., p. 133.

¹¹ Kriegler: *Centralblatt für Bakteriologie und Parasitenkunde*, vol. lix., p. 481.

¹² Dreyer, Scott, and Ainley Walker: *Journal of Pathology and Bacteriology*, vol. xvi., p. 146.

¹³ Krumwiede and Pratt: *Journal of Experimental Medicine*, vol. xix., p. 501.

¹⁴ Browning, Mackie, and Smith: *Journal of Pathology and Bacteriology*, vol. xix., p. 127.

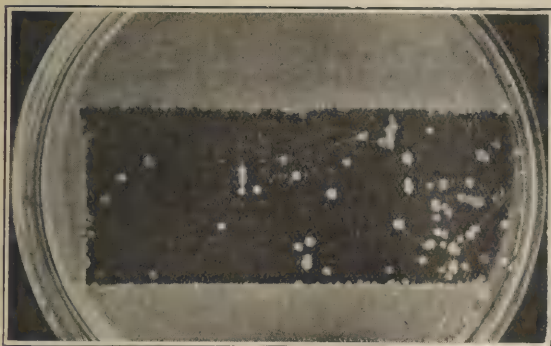
¹⁵ An apparatus which will be quite adequate for the purpose can be made at a comparatively small cost.

drops are then taken from the upper part of the fluid (preferably after brief centrifugalisation) and spread over the surface of an agar plate in the manner already described. The plate, which should be distinctly moist, is then subjected to the action of the arc light as already described, and incubated with the agar uppermost.

The method has been tested on mixtures of *B. typhosus* and *B. coli* in the following proportions: 1 to 1, 1 to 10, 1 to 20, 1 to 30, 1 to 50, 1 to 80, 1 to 100, 1 to 150, and 1 to 200. In every case where there were not more than 50 *B. coli* to each typhoid bacillus numerous isolated colonies of the latter were always found on some portion of the exposed area of the plate. Where there were more than 50, but fewer than 200, *B. coli* to each *B. typhosus* a few colonies at any rate of the latter have almost always been discovered on the plate. Indeed, in one experiment in which there were at least 500 *B. coli* to each *B. typhosus* a few isolated colonies of the latter were recovered. The colonies of *B. coli* on the exposed portion of the plate are well developed, whitish, and opaque, while those of *B. typhosus* are tiny, dewdrop-like, and quite transparent after 18 to 24 hours. From the latter streaks are made on the surface of plates of MacConkey's medium, Endo's medium, and ordinary agar in the order named with a once charged needle in order to confirm the diagnosis. The resulting growth is subsequently submitted to the usual tests.

The plate shown in Fig. 2 is from an experiment in which there were 50 *B. coli* to each *B. typhosus* in the mixture used for plating. The large colonies along the exposed strip are colonies of *B. coli*, while the numerous small colonies are colonies of *B. typhosus*. The density of the mixture used

FIG. 2.



Slide showing large colonies of *B. coli* and numerous small colonies of *B. typhosus*.

for plating is indicated by the complete opacity of the growth outside the limits of exposure to light. In view of the encouraging results of these experiments we have recently applied the method in the examination of the faeces of convalescents and suspected carriers. Of the cases examined seven have already yielded positive results by this method at the first examination, though the ordinary methods failed to afford any evidence of the presence of *B. typhosus* or *B. paratyphosus*. In five of the cases *B. typhosus* was isolated from the light plate and in the other two *B. paratyphosus* (B).

Obviously, the number of cases is at present much too small to justify a confident opinion regarding the ultimate practical utility of the method. But our results have up to the present been so satisfactory that it seems desirable under existing conditions to offer the method for the use and criticism of others, even though our evidence from actual cases is at present scanty.

A CASE OF

RUPTURE OF THE HEART IN A CHILD.

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THE case is of interest, firstly on account of the age of the child, and secondly on account of the occurrence of a congenital stenosis of the coronary arteries and other manifestations pointing to inherited syphilis. The history was very meagre and unsatisfactory. The child, a girl 5 years of age, was, as far as we could learn, in good health up to the morning of her death. She had been somewhat neglected and was poorly nourished. About 9 A.M. on the morning of the child's death the woman in charge of her left the house, and the child was to stay in bed until she came back. On her return half an hour later she found the child had got out of bed and was sitting on the floor, looking ill and complaining of sickness. There was no history that the child had fallen out of bed. A little stimulant was administered, but as there was no sign of improvement the woman became alarmed and took the child to a neighbouring ice-cream shop, where she left her in charge, while she went in search of a doctor. The proprietor of the shop, afraid the child was dying, carried her to the nearest police office in the hope of obtaining the services of the police surgeon, but the child expired on the way. There was a history that eight weeks previously the child had had a fit, and a year ago she was in the parish hospital under treatment for eczema.

Necropsy.—The pericardium was distended with fluid blood. A hæmorrhagic area, 1 in. in length by $\frac{3}{4}$ in. in breadth, was noted on the anterior aspect of the heart along the line of the interventricular septum at its upper third, and also a small perforation within this area. The heart was removed and examined. It was normal in size, pale in colour except at the hæmorrhagic area. On opening the cavities a slight degree of dilatation was noted, but there was no hypertrophy of their walls except, perhaps, a small area in the left ventricle at the immediate apex, where the muscular substance was altered in appearance, abnormally pale, and somewhat translucent. The columnæ carneæ were unusually delicate and in places thread-like in character, and this condition was more noticeable in the case of the left ventricle.

The lesion which had given rise to the rupture was of remarkable character: a hæmatoma, $\frac{1}{2}$ in. in diameter, had formed in the wall of the left ventricle and septum at the place of discolouration above noted. Its cavity was filled with blood clot and its walls were ragged and granular. At its lower aspect it had ruptured externally into the pericardium, and a large probe could easily be passed through the aperture, which was situated $\frac{1}{2}$ in. from the base of the ventricle. The thinned inner wall communicated with the interior of the ventricle by a large and irregular aperture, which was continuous with an extensive rupture across the inner portion of the posterior wall of the chamber. The torn area almost encircled the ventricle, and reached as far as a point immediately beneath the position of the left auricular appendix. The laceration occupied a fair depth of the muscle, and the wall of the ventricle, when viewed by transmitted light, was quite translucent. The right ventricular wall was intact. The valves were of normal size and their curtains were healthy.

Examination of the coronary vessels showed a stenosis of the lumen of both arteries, and the descending branch of the left coronary artery was obliterated at the seat of the rupture and could not be traced beyond it. Above the rupture for a distance of $\frac{1}{2}$ in. its inner coat was discoloured, and a thin layer of fibrin was adherent to the intima. A small thrombus was present in the right coronary artery 1 in. from its origin. The venous sinus was dilated, and immediately beyond the valve a large thrombus was found in the great vein.



Drawing of heart showing (A) hematoma in septum and (B) rupture across posterior wall of left ventricle.

The lungs were non-adherent, and, apart from an area of congestion at the anterior edge of the upper lobe of the left lung, they were healthy. The larynx, trachea, and oesophagus were normal. The tonsils were slightly enlarged. The lymphoid nodes at the root of the tongue were unduly prominent, and the lymphatic glands on both sides of the neck and also the thymus gland were somewhat enlarged. The stomach was healthy. The lymphoid tissue of the small intestine was increased in amount and the Peyer's patches were enlarged. The mesenteric glands were enlarged and a number of them showed evidence of caseation.

The liver was of large size, firm in character, and slightly waxy in appearance. The spleen was somewhat enlarged and indurated with the Malpighian bodies unduly prominent on section. The right kidney was firm and congested, but otherwise it appeared normal on naked-eye examination. The left kidney was of normal size, more fibrous-like in appearance, and there was an area of pallor, 1 in. by 1 in., at its lower pole, suggestive of an old infarction. The suprarenals were small in size and the relationship of the cortex to the medulla was well maintained.

The brain and the other organs of the body were healthy.

Microscopical Examination of the Case.

Heart.—Paraffin and frozen sections were prepared and examined from different parts of the organ. There was no evidence of fatty degeneration, but the cells were dissociated over large areas in nearly every section examined and the striation of the bundles was to a great extent impaired. A

number of the cells showed the presence of small vacuoles. In the region of the rupture the appearances of advanced ischemic atrophy were noticed, and in other areas of the heart this condition was also observed, but to a less pronounced extent. In other parts of the heart, and especially in the area of the left ventricle in the vicinity of the apex, a distinct increase in the fibrous tissue was found, giving to the sections a highly cellular appearance. No gross areas of fibrosis were present. The small blood-vessels in the substance of the muscle were found to have a distinct thickening of their walls with cellular infiltration of their middle coats. The condition of the coronary arteries was that of a general stenosis. There was thickening of the inner coat noted in the smaller vessels. The thickening was patchy in its distribution, and large areas were normal. Inflammatory cells were seen in the neighbourhood of the vessel wall. Sections of the thrombosed vessels showed that this had taken place at affected portions of the inner coat.

Liver.—The sections showed in different places a distinct thickening of the capsule. There was a leucocytic infiltration between the liver cells of the nature of a pericellular cirrhosis, and the cells, although somewhat separated, were otherwise unaltered. Small aggregations of inflammatory cells were seen at different places within its substance. The fibrous tissue throughout the organ was generally increased and this increase was more marked in the portal zones. A distinct increase of fibrous tissue around the smaller arteries was also noted. Although miliary gummata had not been recognised in the naked-eye examination of the organ, one or two were met with in the microscopical examination of the sections, and their appearances were quite unmistakable.

Kidney.—The sections were prepared from portions of both kidneys. In each of them well-marked alterations of the nature of catarrhal and interstitial nephritis were found. Sections from the area of the left kidney, which presented the appearance of an infarction, showed a limited peripheral area of coagulation necrosis due to embolism. The changes in the kidney were more extensive in the cortical region, but the medullary portion was also considerably affected. Most of the glomeruli presented normal appearances. A number, however, showed increase of fibrous stroma, granular change of the epithelium, and partial loss of the capsular epithelium, while others showed evidence of shrinkage of the tuft, with a large space between it and the capsule. Congestion of the glomeruli was a marked feature of some of the sections, but in others it was present only to a slight degree. The changes in the convoluted tubules were the most marked feature of the specimen. The epithelium was swollen and granular, and desquamation of cells was abundantly present. A number of the tubules were dilated and extravasated blood was present in some of them. The straight tubules were much less affected, although desquamation of their cells was also noted. The stroma in the cortical region was increased in amount and highly cellular areas were interspersed between adjacent groups of glomeruli and tubules, giving a segmented character to the organ. The change in the interstitial tissue was chiefly of the fibroblast type, but areas of lymphocytes were also present. In the medullary portion of the organ the increase in the interstitial tissue was considerable and of the nature of an actual fibrosis. The fibrous tissue around some of the larger vessels was increased, but

thickening of the walls of the smaller arteries seen in the section might be interpreted as a normal condition of children (Carpenter).¹⁰

Spleen.—The capsule was thickened and the trabeculae within the organ were larger than the normal size. The pulp had undergone considerable alteration. The fibrous-tissue elements were increased and a leucocytic infiltration was also present. The walls of the smaller arteries were thickened and the muscular coat proliferated. The Malpighian bodies were not enlarged, but, if anything, they appeared smaller in size, and their undue prominence was due to the changes in the pulp of the organ.

The microscopical changes in the other organs were of no special significance.

Remarks.—Cases of rupture of the heart occurring spontaneously in children are very rare; and so far I have been unable to find an account of a similar case.

The interpretation which was placed on the case was that the child was the subject of an abnormal development of the coronary arteries. The vessels were unusually narrow, and further, the lumen was encroached upon in places by the areas of thickening in the inner coat due evidently to a syphilitic endarteritis. The hæmatoma in the septum was more than likely the result of the thrombosis in the descending branch of the left coronary artery, and represented really a dissecting aneurysm of the heart wall; and the case is comparable with that described by Lazarus-Barlow,¹ which, however, occurred in a man of advanced life.

The other view was that, as a result of the occlusion of the vessel and an insufficiency of the anastomosis, necrosis of the heart wall (infarction) had occurred. The endocardial blood had forced an entrance into the muscle, and, tearing its way with each successive beat of the heart through the weakened tissues (as suggested by Birch-Hirschfeld³), had reached the pericardium and perforated it. Although ischæmic atrophy was present in sections of the heart wall, this was more apparent at the apex of the ventricles and was by no means a feature of the sections which went through the actual ruptured tissue itself. Coronary artery disease is well recognised as a cause of myomalacia cordis, but ultimate rupture as a result of same, although it does occur, is by no means so common as one would expect. Steven,⁵ in an investigation of the coronary arteries and their effects on the heart, met with the condition only once in 102 cases of affected coronary arteries, although definite myomalacia was present in five. If microscopical examinations had been undertaken it is more than likely the lesser degree of heart softening such as was experienced in our sections would have been met with more frequently.

The other factors of our case bulk considerably in our interpretation of the condition—namely, that we were dealing with a heart which was weakened by inherited syphilis as well as by the thrombosis of the vessel. Evidences of syphilis were seen in the other organs as well as in the heart itself.

It has been held for long that inherited syphilis plays an important part in the causation of congenital heart disease. Most of the writers have dealt with the subject of the graver defects of the organ, such as patency of the interventricular septum and abnormalities of the great vessels, rather than with changes in the substance of the heart or lesions of the coronary arteries. The

recent advances in our appreciation of its rôle in the causation and its actual frequency have been strengthened from the clinical side by the study of such cases with the application of the Wassermann test either to the blood of the child or to that of the parents. Findlay and Robertson⁸ record the presence of a positive reaction in 9 out of 11 cases which they had observed. Browning⁹ (also quoted by Findlay and Robertson) gives Watson's results of a positive finding in 17 out of 25 cases of congenital cardiac disease, while Holt, on the other hand, records a distinctly adverse finding.

From the pathological side the finding of the spirochæta pallida in the heart muscle confirms the diagnosis. Warthin⁶ has found evidence of changes in the heart, due to syphilis, in a considerable number of cases. He has recognised an especial form of interstitial myocarditis due to the presence of the spirochæta pallida, and holds that such may exist independently of other signs or symptoms of congenital syphilis and may even be the only manifestation. He also regards the cardiac weakness produced by the presence of the *S. pallida* as predisposing to the subsequent other infections of the heart. He has found it associated with infantilism, hypoplastic constitution, or less severe forms of under development and as tending in later life to the production of fibroid heart and coronary sclerosis. In a later paper⁷ he discusses the primary tissue lesions in the heart produced by the *S. pallida*, and concludes that syphilis is one of the most important factors in the causation of cardiac disease. The appearance of the heart, he states, may not be such as would have been called syphilitic in the older interpretation of our knowledge of this disease. He also found it possible to demonstrate the presence of the spirochætes in the heart when it was impossible to demonstrate them elsewhere, and he regards their localisation in the heart as even more common than in the liver. In our case we were able to demonstrate their presence in the heart muscle, but only after careful examination, and their numbers were few. In the kidneys they were obtained with less difficulty and were more abundant, but in spite of the presence of miliary gummata it was impossible to say that they were present in the liver.

The histological change in the liver was such as is associated with congenital syphilis—viz., a pericellular cirrhosis. The changes in the kidneys were of the nature of the combined catarrhal and interstitial nephritis which has been met with in syphilitic infants (Carpenter and others¹⁰). Although it is possible that such a condition might have its origin in intestinal or other toxins, still, with the other factors of the case, we may regard the changes in them as an additional indication of the syphilitic nature of the disease.

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A CONFERENCE on Our Food During War will be held at the Institute of Hygiene on Monday next, March 29th, at 3.30 P.M. Sir Malcolm Morris will preside, and well-known authorities will express their views.

ON THE MOVEMENTS OF THE NORMAL STOMACH.

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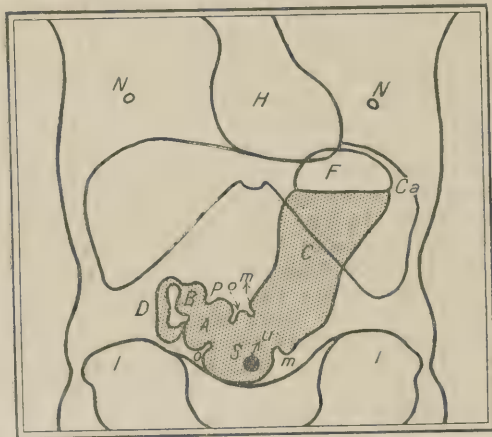
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CONSIDERABLE discussion has arisen and much diversity of opinion has been expressed by surgeons, anatomists, and radiologists concerning the configuration and changes of form of the separate segments of the stomach. It must be admitted that the stomach *in vivo* and in an active phase is a very different object from the same organ as seen on the operating table or in the post-mortem room. Bearing in mind the researches of Försell,¹ of Stockholm, and the various accounts given by radiologists of renown, we have adopted the following description as most convenient for our purpose.

1. Radiological Divisions of the Stomach (Fig. 1).

In the erect position the organ is syphon or J-shaped, consisting therefore of a vertical and of a horizontal component, the former constituting about

FIG. 1.



Normal stomach in erect position. F, Fornix. C, Corpus. S, Sinus or vestibule. A, Antrum. B, Cap of duodenum. D, Descending duodenum. N, Nipple. H, Heart. I, Ilium. U, Umbilicus. Ca, Cardiac constriction. mm, Angular constriction. oo, Antral constriction. P, Pylorus.

two-thirds of the whole. The angular notch (incisura angularis) on the lesser curvature marks the separation of the two. The vertical portion, sometimes termed the vertical stomach, is subdivided into (a) the fornix (fundus) lying above the oesophageal opening and as a rule containing air (air sac or reservoir); and (b) the corpus, which is vertical in the erect but slightly oblique in the recumbent position.

The pyloric or horizontal part (pars pylorica), as visualised on the screen, during certain phases of its activity only, is subdivisible into (c) the sinus or vestibule, (d) the antrum, and (e) the pylorus. The antrum may be found firmly contracted after death, and is then known as the pyloric canal.² During the concentric contraction of the antrum the latter becomes practically separated by a deep incisure from the sinus. This may be termed the antral constriction.

That part of the duodenum which first receives and temporarily retains the opaque chyme resembles the pyloric part in all essential features. It has been styled the cap or *pilleus ventriculi*,³ and represents the proximal half of the first portion of the duodenum. In reality the cap is to be regarded as a gastric annexe, and as such must be included in the description of the stomach.

2. Innervation of the Stomach.

The musculature of the stomach in association with its intrinsic nerve plexuses, ganglia, and extrinsic nerves manifests two chief properties—viz., (a) tone, and (b) peristalsis. Of these tone appears to be pre-eminently a function of the muscular fibre itself, and therefore primarily myogenic. Peristalsis, on the other hand, is dependent on the integrity of the myenteric plexus and ganglia situated between its muscular coats.

At the same time both tone and peristalsis are controlled and coördinated by the extrinsic nerves—the efferent fibres of the vagi and splanchnics. In addition to these connexions afferent fibres, associated with interoceptors lying within the mucosa and between the muscular layers, run from the submucous and myenteric plexuses, in the vagi and splanchnics, to the cord and medulla (viscero-motor and viscero-inhibiting centres), proceeding upwards by synapses and relays to the general sub-conscious emotional centres of the optic thalami.⁴ In the absence of the higher consciousness these centres probably exert their influence by connexions with the corpora striata. Furthermore, both tone and peristalsis lie under the influence of the highest emotional states—exaltation and joy, anger and fear, worry and grief—the loci of which are presumably situated within the cerebral cortex. The centrifugal paths will run either through the basal ganglia or direct to the visceral medullary centres.

The gastric mucosa is endowed with protopathic sensibility (heat and cold) and with protopathic appetite sensibility by nerve-twigs running into it from the submucous plexus.⁵ The stimulus for appetite appears to be the secretion of acid (0.5 per cent.). The sensory apparatus for hunger apparently lies between the muscular layers, and is stimulated by a certain type of contractions of the empty stomach (hunger contractions).

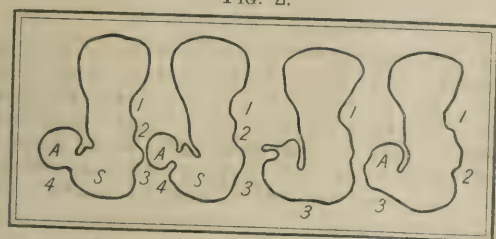
3. Technique and Description of Movements.

The outlines and activity of the stomach become visible when 10 ounces of an emulsion or fine creamy suspension of 2–4 ounces of bismuth subcarbonate or oxychloride, made with milk or water, are administered; 1½ ounces of lactose may be mixed with the solution in order to make it more palatable.⁶ It is preferable to select a sparely nourished individual, and the canalisation should be observed in the erect position.

If a small quantity, about 1 ounce, be first swallowed the bismuth sometimes may be seen to run down as a narrow longitudinal band direct to the sinus, filling the *canalis gastricus*,⁷ which lies along the lesser curvature. It is surmised that the oblique muscular fibres may temporarily convert the gastric groove along this curvature into a gastric canal or arcade. However this may be, when tone is normal the bulk of the food is held up for a time beneath the air reservoir and only gradually canalises the corpus, reaching the sinus gradatim.⁸ When the repletion of the pars pylorica is complete the recumbent position is assumed, and the patient reclines on the right side for a few minutes in order to fill the duodenum.

Under these circumstances the movements may be seen to commence on the greater curvature of the corpus just below the cardiac notch (Home's point), and they are propagated as a slowly recurring series of annular constrictions becoming deeper and more pronounced as they approach the pylorus. In Fig. 2, A, as many as four successive waves may be counted simultaneously. The condition 6 seconds after A is represented by B; after 14 and 20 seconds by C and D respectively. At D the stomach has practically reached the stage of A, and the antrum has

FIG. 2.



After Rieder. Changes of form during contraction. A, Antrum. S, Sinus. 1, 2, 3, 4, Waves of constriction.

just re-expanded preparatory to the commencement of a new systole. This lasts apparently about 12-14 seconds, and is followed by the stage of diastole or (active?) dilation which occupies 6-7 seconds.

During the diastole chyme will be drawn from the sinus and, if the pylorus be open, pancreatic juice from the duodenum. If the pylorus be shut contraction of the antrum will drive the chyme backwards into the sinus in an axial stream. During diastole the most essential change in outline of the pars pylorica results in the formation of a new antrum. The antrum is therefore of supreme importance in the comminution and, the pylorus being open, the propulsion of the chyme. It has accordingly been termed the *motor* of the stomach. It may be compared to the ventricle of the heart, the sinus to the auricle, and the cap to the aortic bulb. Obviously peristalsis is *par excellence* the function of the pars pylorica, and in particular that of the antrum.

4. Action of the Vagi and Splanchnics (Fig. 3).

At the present time there is no general consensus of physiological opinion as to the action of these two nerves on the gastric outlets. It appears to vary in different animals. We know that they perform opposite functions generally,^{8a} and that the effects of stimulation of the splanchnics resemble those of adrenin.⁹ We may therefore postulate the existence of an antagonistic hormone, possessing intimate relations with vagal activity. Extract of pituitary,¹⁰ after a slight inhibition, produces a powerful and persistent augmentation with increase of the rhythmical movements of the stomach. Adrenin appears, on the other hand, to diminish the excitability of the vagus, although the precise conditions of its occurrence have not yet been ascertained.

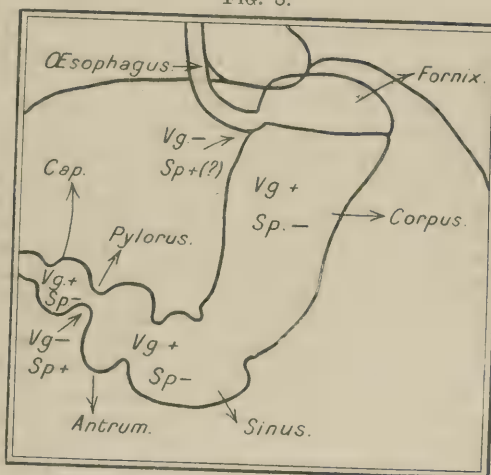
Moreover, there appear to be differences in individuals as to the relative excitability of the nerves. Some clinicians have described the conditions of vagal and sympathetic hypertonia¹¹ according as one or the other nerve appears to possess an ascendancy in the production of symptoms. In the former (by far the more numerous) the oculo-cardiac¹² reflex of the trigeminus is accompanied by a diminution of cardiac beats, in

the latter by an increase. Vagopathic individuals would be more likely to suffer from gastric hyper-tonus, antral spasm, hyperacidity, and from spasm of the duodenal cap. The splanchnopathic subject might exhibit an inclination to sluggish digestion, delay of gastric evacuation, and a tendency towards atony, pyloric spasm, and gastric ectasia. Individuals in whom cutaneous stimulation refuses to elicit the cutaneous vagus reflex (*vide infra*) may belong to this class; although fear and anxiety in both categories by stimulation of the splanchnics would induce a similar failure.

We know that stimulation of the vagus dilates the cardiac opening of the oesophagus, and the opposite condition of cardiospasm may be due to vagus inertia, inhibition, to the activity of local ganglia or to the action of the sympathetic. A better term for the latter condition is cardiotonia. The designation "achalasia" has been recently proposed.¹³

The vagus also exerts a tonic effect on the walls of the stomach, stimulates peristalsis of the organ and of the cap, and secretion of the gastric glands. The splanchnics produce a diminution of tone and a decreased peristalsis.

FIG. 3.



Vg +, Vagus contraction. Vg -, Vagus relaxation. Sp +, Splanchnic contraction. Sp -, Splanchnic relaxation.

With regard to the action on the pylorus the general effect of the vagus in man is probably to relax and that of the sympathetic to increase its tone.¹⁴ Similar results may be inferred as to the action of the nerves on the cap, and on a problematical physiological sphincter which separates it from the distal duodenum.

5. Gastric Reflexes.

It has been suggested that the difficulty or delay of canalisation of the corpus is not due to a necessary distension of its walls (assuming that the empty stomach has no capacity), but to an oesophageal reflex¹⁵ which controls the oblique muscles and increases their tone. It is more probable that the reflex may arise from the gastric mucosa itself. But the appearances observed when the recumbent position is adopted throughout seem to negative this hypothesis.

At times the entire stomach passes into a quiescent passive state. This may be produced by repletion of the small bowel acting reflexly by way of the splanchnics. Impulses may pass along these nerves from the highest emotional centres (anxiety and fright) which induce a similar condition of gastric stasis.

Interesting facts have been recorded with regard to the hungry stomach in dogs.¹⁶ With the nerves intact all mechanical and chemical stimulation of the intestinal mucosa cause inhibition of gastric tonus and cessation of hunger contractions. Pure gastric juice and HCl (0.5 per cent.) cause the quickest and longest inhibition. Moreover, sodium carbonate itself has a slight inhibitory effect. When the vagi and splanchnics are divided similar results follow, but the latent period is much prolonged and the degree of inhibition is considerably diminished. This inhibition of tone and contraction therefore involves both long or central, and short or local reflex paths. The longer reflexes are dominant. It is uncertain how far one can apply the results to the digesting stomach and to man, since it seems justifiable to assume that the vagus itself has gradually come to participate much more freely in these reflexes, and that in the normal stomach such excitation may often result in hypertonus and hyperperistalsis of that organ. It is also noteworthy that stimulation of the gastric mucosa itself, in the above experimentation, by alkalies or acids, and by the secretion of gastric juice produces a depression of the hunger contractions.

Reflex activity on the part of the *vagus* may be induced by stimulation of the costal margins of either side by means of a gentle sliding movement of the fingers upon the skin.¹⁷ Sometimes the appendicular area is equally efficacious. After a variable interval—10 to 30 seconds or longer, in the meantime the stimulation being continued—peristalsis of the stomach commences, and by constant repetition of the excitation a complete evacuation of the contents is possible. The most favourable time is about three hours after food. With a binaural stethoscope applied over the site of the duodenum the flow of chyme is plainly audible. On the fluorescent screen at times a fleeting evanescent wave of dilatation is seen to precede the peristalsis, thus apparently bringing the movement into line with the peristalsis of the small bowel and the law of the intestines.¹⁸ In other words, it becomes a true peristalsis. It does not follow that a relaxation of the pyloric sphincter of sufficient force to open it precedes the arrival of each wave of contraction. In the early stages of gastric digestion the stimuli are subliminal and the summation of several is necessary to produce this effect.

6. The Role of the Acid Secretion: Duodenal Reflexes.

Since the gastric motility is quite as vigorous when the carbonate is substituted for the oxychloride it is unnecessary to ascribe to the acid any serious influence over the function of peristalsis. It has also been accepted that the presence of acid on the gastric side relaxes the pylorus, whilst on the duodenal side acid evokes a reflex which shuts the sphincter. Inasmuch as the cap and antrum are physiologically essentially similar it is difficult to subscribe to this theory. Moreover, it does not explain many of the facts.

If the statements of Boldyreff¹⁹ are verified the play of the pylorus is by no means a simple matter. It appears that the alkalinity of the pancreatic secretion is normally required to neutralise the acid (0.5 per cent.), and it seems probable that the juice enters the stomach itself to accomplish this purpose. Boldyreff ascribes this influx to an anti-peristalsis on the part of the duodenum. Have we any evidence of this in man? It is common to see a morsel of bismuth moving towards the jejunum

suddenly stop in the middle of the descending duodenum and turn back for a moment before resuming its course. Is this due to an anti-peristaltic wave (anastalsis) of the duodenum, or is it a suction effect on the part of the dilating antrum with an open pylorus? The antrum usually contracts so powerfully that its opaque contents disappear entirely for an interval of time, and the succeeding dilatation is probably no less energetic. Prolonged observations are necessary in order to discriminate. Both events may participate. The theory of duodenal reflex closure and its absence in ulcer of the duodenum is at least a subject for argument and difference of opinion.

In so-called duodenal irritation the whole process of gastric digestion is more speedy than in the normal. It is not due to duodenal irritation; rather is it a sign of reflex vago-gastric excitation. Afferent impulses from near and distant areas, as the gall-bladder (calculi), appendix (chronic appendicitis), colon (colitis, colica mucosa, and certain forms of constipation), the kidney (nephroptosis, calculi), and many other even extra-abdominal situations,* are carried to the medulla and reflected along the vagus to the stomach and duodenum. The duodenal irritation is the effect, not the cause. Any individual with hypertonus of the stomach, rapid gastric evacuation, with lively antral peristalsis and exalted pyloric display, is potentially liable to ulceration of the duodenum. The outcome depends on the integrity and reactive capabilities of the pancreas. The increased gastric phenomena invoke a greater production of secretin²⁰ and a heightened reflex secretory excitation of the vagal branches supplying the pancreas.²¹

Further investigations are necessary before we can fully comprehend the intricate behaviour of the pylorus and the manifold activities of the antrum and duodenum. Also the relations between ulcer of the lesser curvature and the formation of the lesser gastric canal, and between splanchnic irritation and ulcer of the pylorus, are suggestive but so far speculative.

Achylia gastrica and senile dyspepsia with deficit of gastric juice may result from a diffuse fibrosis affecting the gastric glands and pylorus. In old age, moreover, there supervenes a condition of atony in the sphincters generally which leads to diminished efficiency. But an extended discussion of the opaque stomach and duodenum in disease would lead us far beyond the limits of this communication.

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* In other words, the areas may be either enteral or parenteral (Cameron).

BERI-BERI AT FALMOUTH.—At the last meeting of the Falmouth and Truro port sanitary authority the medical officer of health, Dr. G. E. Lanyon, reported that several vessels had arrived with cases of beri-beri on board. They were chiefly vessels engaged in whaling. Investigation of the patients gave no satisfactory explanation.

A NOTE ON

CERTAIN PECULIAR CRYSTALS FOUND IN THE CEREBRO-SPINAL FLUID FROM A CASE OF SEPTIC MENINGITIS.

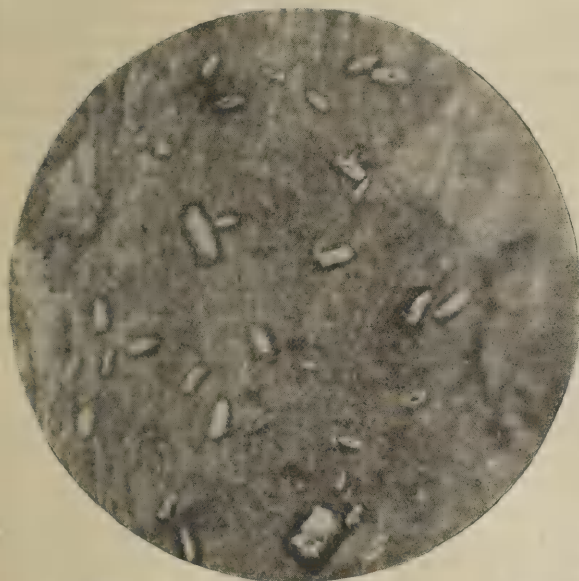
BY W. W. D. THOMSON, B.A., B.Sc., M.B., D.P.H. BELFAST,

RIDDILL DEMONSTRATOR OF PATHOLOGY, QUEEN'S UNIVERSITY, BELFAST; PHYSICIAN AND CLINICAL PATHOLOGIST, MATER INFIRMORUM HOSPITAL, BELFAST.

ON Feb. 16th, 1914, I received from Dr. A. Gardiner Robb, medical superintendent of the Belfast Fever Hospitals, a sample of cerebro-spinal fluid drawn from a case clinically resembling cerebro-spinal fever. Further examination of the patient, a girl aged 18 years, discovered that there was present a chronic otitis media, which had probably set up a septic meningitis. The patient died soon after the lumbar puncture. Permission to hold a post-mortem examination was refused.

The cerebro-spinal fluid on centrifugalisation yielded a copious deposit. This deposit consisted of pus cells of the neutrophil polymorphonuclear variety, along with large numbers of peculiar crystals. (Fig. 1.) The bottle in which this fluid was sent to me had been most carefully sterilised before use, so that there could be no question of contamination. The crystals when examined in a hanging-drop preparation seemed in some cases to be intracellular. They varied greatly in size from

FIG. 1.

Deposit from cerebro-spinal fluid containing crystals. $\times 860$.

2 to 10 μ . Mr. A. R. Derryhouse, D.Sc., F.G.S., lecturer in geology, Queen's University, Belfast, kindly examined the crystals and reported as follows:—

The crystals are elongated and appear somewhat rounded at the ends. They are colourless and transparent, and possess a refractive index greater than that of the clove oil (1.53) in which they are mounted. Most of them contain a central nucleus or spot (A, Fig. 2), which appears to have crystal outlines and sometimes gives the effect of zonal structure. This effect may be due to the existence of pinacoid facets flanked by one or more pyramid faces (C). There are also a few twin crystals (D). The crystals are strongly doubly refracting, and the extinction

is straight which places them in either the tetragonal, hexagonal, or rhombic system. From the general form I am inclined to think they are rhombic.

These crystals were found to be soluble in dilute acids (organic and inorganic) and alkalies, and in acid spirit. They were insoluble in alcohol, ether, chloroform, acetone, or boiling water. They were

FIG. 2.



Forms of crystals.

unstained by Gram's method, eosin, methylene blue, carbol-fuchsin, iodine, or collargol. No further crystals were yielded on evaporating down the supernatant fluid left after centrifugalisation.

I attempted to obtain some information as regards the chemical composition of these crystals, apart from their solubilities; but from their small size and the small quantity available this part of the examination was difficult. The fact that these crystals crystallised out from the cerebro-spinal fluid itself renders it highly improbable that chlorides are present; sulphates are only present in such very minute quantities in the serous fluids that their presence is most unlikely; oxalates are insoluble in acetic acid, while these crystals are soluble in acetic acid. Thus it seemed to me that phosphoric acid was the acid radicle probably present. In examining for phosphates I followed A. B. Macallum's method¹ for the detection of phosphates microchemically. Films of the crystals were prepared on coverslips, fixed in alcohol, and placed in a nitric acid solution of ammonium molybdate for 24 hours at a temperature not exceeding 35° C. The film was washed with dilute nitric acid and water, and then placed in a freshly prepared 4 per cent. solution of phenylhydrazine hydrochloride. (This latter reduces the phospho-molybdate throughout the preparation, whether it be derived from inorganic or organic compounds of phosphorus, to a greenish-blue coloured compound.) After reduction the preparation was thoroughly washed with water, dehydrated, cleared, and mounted in balsam. As a control I at the same time and by the same method examined films of the coffin-lid crystals of ammonium-magnesium phosphate obtained from urine. I found in both cases that the crystals became disintegrated; but whereas in the latter case the films after treatment with phenylhydrazine hydrochloride became blue-green, the films with the crystals from the cerebro-spinal fluid remained colourless, nor could I distinguish microscopically any colouration save a faint yellow. Thus the chemical examination, repeated frequently, seems to negative the presence of phosphoric acid.

While it seems improbable from the solubilities above mentioned that these crystals consist of a salt of choline, Rosenheim's test² was carried out to throw light on this point. This test depends on the formation of brown hæmin-like crystals of choline periodide when substances containing choline are treated with a strong solution of iodine in potassium iodide. This test gave me a negative result.

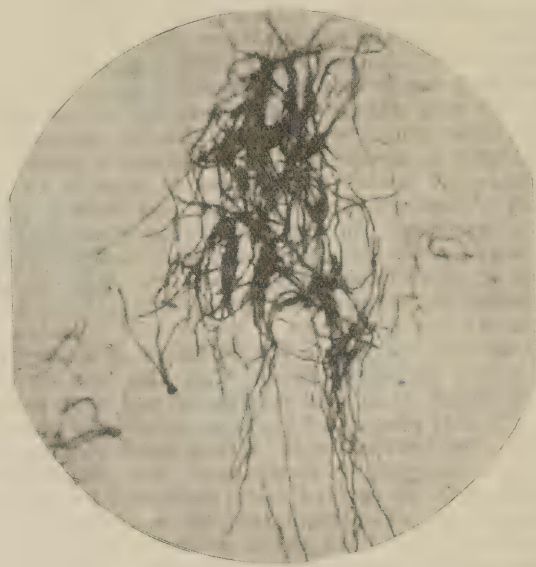
¹ A. B. Macallum: Der Nachweis und die Lokalisation des Phosphors durch mikrochemische Methoden, Ergebnisse der Physiologie, V., vii., 1908, pp. 632-645.

² Otto Rosenheim: Choline in Cerebro-spinal Fluid, Journal of Physiology, vol. xxxv., pp. 465-472.

These crystals resemble the Charcot-Leyden crystals and Böttcher's sperm crystals in the fact that they are doubly refractile and soluble in dilute acids and alkalies. They differ, however, by being probably in the rhombic system, whereas the Charcot-Leyden crystals are octahedral and Böttcher's crystals are hexagonal.³ The Charcot-Leyden crystals are soluble also in hot water, stain with eosin (as do also the sperm crystals⁴), and are accompanied by an eosinophilia as in asthma. Böttcher's crystals have been demonstrated by Pöhl⁵ to be the phosphate of an organic base (spermin). I failed to demonstrate the presence of phosphates in the crystals which I have described. Nothing definite is yet known as to the chemistry of the Charcot-Leyden crystals.

Scheiner considers that Charcot's crystals and Böttcher's sperm crystals are identical, notwithstanding Cohn's claim that these crystals differ crystallographically; the crystals described in this article seem quite distinct from either.

FIG. 3.

Microphotograph of streptothrix. $\times 1120$.

The deposit, after careful microscopical research, showed a few extracellular Gram-positive cocci and an occasional large rod-shaped bacillary form. There was no evidence of meningococci. On culture on agar I obtained a growth of staphylococci and a few much larger colonies, round and opaque, which grew into the agar, having a cup-shaped base. They clung tenaciously to the culture medium, and it was exceedingly difficult to break the colony down so as to obtain a fine emulsion. On staining these colonies were found to be composed of a Gram-positive streptothrix, a microphotograph of which is shown in Fig. 3. I consider the bacillary forms seen on direct examination as probably small bacillary filaments of this streptothrix. An enforced absence from the laboratory prevented a further examination as to the cultural and pathological characteristics of this organism.

As I can discover no account of crystals such as I have described being previously found in the cerebro-spinal fluid I thought that this pathological finding was of sufficient interest to report.

I have to thank Professor W. St. Clair Symmers, professor of pathology, Queen's University, Belfast, for his assistance in searching the literature of the subject; Dr. J. A. Milroy, lecturer in biochemistry, for his advice in the chemical examination of the crystals; Dr. Derryhouse for examining the crystals morphologically, and Dr. H. P. Malcolm, demonstrator of anatomy, for the trouble he took in obtaining the microphotographs illustrating this article.

Belfast.

A CONTRIBUTION TO THE BACTERIOLOGY OF THE URINARY TRACT IN CHILDREN.

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THIS paper deals with 106¹ catheter samples of urine which have been fully examined bacteriologically. At the outset it seemed advisable to make a bacteriological investigation of urines obtained from normal children. Although there are obvious objections to catheterisation in the case of healthy children, the difficulty is partially overcome by making use of the hernia and cleft palate cases awaiting operation in the surgical wards. A series of 19 catheter urines was in this manner collected. All specimens were collected by competent individuals and every possible precaution taken as regards instruments, patients, hands, and culture media, which last were incubated previously to use. Of these 19 specimens 11 were sterile after from 48 to 72 hours' incubation, whilst 8 grew an organism which was invariably a white staphylococcus.

Broadly speaking, this particular white coccus was found to acidify litmus milk (often only after some days' incubation) but not to clot it; to grow slowly on gelatin without liquefaction; to have no effect on neutral red broth anaerobically, and to acidify maltose. No change ever occurred in mannite, and a white colony was obtained on agar. Most likely the coccus is present in that portion of the urethra which is inaccessible to cleansing from the outside. In 5 out of the 8 positive cases the first broth tube used to receive the urine grew the coccus, while the second one employed remained sterile. This points to the presence of small numbers of organisms, and further suggests that they are picked up by the catheter in the deeper portions of the urethra and meatus and washed down through the eye of the instrument.

Infection by the *Bacillus Coli*.

In all instances the catheter specimen was collected in a sterile tube, transferred thence to broth and McConkey culture tubes, and 24 hours later neutral red bile salt agar and agar plates were made. All the coli organisms produced acid and gas in McConkey, maltose, mannite, lactose and dextrose, grew on gelatin without liquefaction, and formed a red colony on neutral red bile salt agar. The atypical behaviour of these bacilli is seen in regard to the production of indol, the fermentation of cane sugar, and the effect produced on litmus milk. These reactions in 43 different strains of urinary *B. coli* are summarised below.

The indol reaction was found present with great frequency after the organism had been grown three or four days in peptone water and using the paradi-

³ Cohn: Deutsches Archiv für Klinische Medizin, 1895, vol. liv., p. 514.

⁴ Sobotta: Atlas und Lehrbuch der Histologie, p. 178.

⁵ Pöhl: Die Physiol. chem. Grundlagen der Spermintheorie, St. Petersburg, 1898.

¹ At the time of writing the total has now reached 157, but the additional cases merely bear out the general results here recorded.

methyamidobenzaldehyde method. Possibly the absence of indol formation, so frequently recorded in *B. coli* isolated from the urinary tract, is due to the use of the less satisfactory nitroso-nitric acid test. All the litmus milk cultures were observed for a week or ten days, if no clot formation had occurred earlier.

Summary of Reactions.

Test.	No. of strains tested.	Result.
Action on litmus milk	43 ...	{ Acid and clot in 26; acid only in 17.
Peptone water—indol reaction ...	34 ...	{ Indol present in 33; no indol in 1.
Action on cane sugar... ..	27 ...	{ No change in 17; acid and gas in 10.
Action on neutral red broth	11 ...	All showed reduction.

The channels of infection.—For a discussion on this point reference must be made to papers by Hale White in THE LANCET and Nabarro in the Practitioner. Infections of the urinary tract by the colon bacillus may be roughly divided into: 1. Cases of colon bacilluria which are entirely latent or else present mild symptoms only, such as a certain degree of pyrexia. In such examples only a few leucocytes are present in an acid urine, although it may be teeming with bacilli. 2. The cases of frank pyuria with symptoms of cystitis, or it may be of pyelitis. Such patients may be the subjects of tuberculosis affecting the urinary tract, and generally show a considerable amount of pus in an acid urine. Most of the cases dealt with here belong to the first category, and only some half-dozen or so to the second.

Out of 43 cases of *B. coli* infection 7 were males (16·3 per cent.) and 36 females (83·7 per cent.). I favour the view that the infection is from without and due to a direct passage of the organisms from the anal orifice to the vulva, and thence upwards via the urethra to the bladder, &c. At the same time this hypothesis, while explaining the majority of instances of infection, will not cover them all, and the other possible routes cannot be entirely ruled out as some authors appear to think. The bulk of the patients were girls suffering from acute summer diarrhoea (with or without the added complication of oedema); in such, bacilli of the colon group and its congeners are known to be present in a state of exalted virulence within the alimentary canal. While it is not easy to say what particular organism of the typho-colon or the salmonella groups may be the cause of any case of acute enteritis in a child, it must be allowed that the colon bacillus, when present alone or in combination with some of the allied organisms, might easily gain entry to the bladder by direct extension in the female. Provided that the patient's resistance—i.e., the natural immunity—to the entry of pathogenic germs has been impaired by some intercurrent disease, this direct extension hypothesis would cover a majority of the female cases. The impairment of resistance seems to be an important factor, and it would help to explain the occurrence of colon bacilluria which I found in the following list of cases: diphtheria, lobar pneumonia, relapsing pneumonia, pneumonia with measles, migraine, tuberculous peritonitis complicated by measles, and miliary tuberculosis. Of course, a colon bacilluria is far and away most common accompanying some infective process in the alimentary tract, but it is not confined by any means to such cases. As regards the blood stream as a possible channel of infection, although many observers (including myself) have failed to get positive results from blood cultures, there is some experimental evidence

in its favour, and Panton has recently shown that colon bacilli may be cultivated from the blood stream in certain acute infective conditions.

Examination of films.—An examination of stained films from the centrifuged deposit serves sharply to mark off the colon carrier from the pyuria cases with their very abundant leucocytes. Thus out of 40 cases of colon infection (17 of which were instances of acute summer diarrhoea complicated by oedema) from the medical wards, only 1 showed a true pyuria, while 2 others revealed numerous polymorphonuclear leucocytes with a slight deposit on centrifugation. Nineteen examples showed a variable number of bacilli, scanty leucocytes, or merely a few mononuclears; 6 showed neither cells nor organisms in the film, and the remaining 12 bacilli alone with no cells. It was usual in the colon carrier to find few or many bacilli associated with very scarce polymorphonuclear leucocytes.

Vaccine treatment.—The autogenous vaccine was used for 3 patients with bad pyuria on the surgical side. In all the bacilluria persisted, but the amount of pus was diminished and the clinical state underwent an improvement, which had not been noticeable previous to the use of vaccines. An examination for tubercle bacilli was made in all these cases, but none were found. Among the patients in the medical wards vaccine treatment was but little employed, and in the oedematous cases 3 to 5 minims of 1 in 1000 adrenalin solution either orally or hypodermically was particularly successful; in numerous instances alkaline treatment was used with good effect. In 24 patients the urine was repeatedly examined by culture to determine if it was sterile after the children had been some time under treatment. In 10 instances there was no bacilluria when the children left hospital, and in 4 not even a staphylococcus was grown.

It was not my experience to find that the bacillus present commonly underwent alteration during the child's stay in hospital. Five examples did, however, occur in which a *B. coli* gave place to a bacillus proteus or the reverse sequence obtained. The average stay in hospital of those children whose urine became culturally bacteria free was from three to six weeks. Those patients in whom the bacilluria persisted to some degree all left the medical wards practically well and with no pus in the urine. This contrasts with those few cases of the surgical type (and the possibility of a tuberculous infection in the background) referred to earlier in this paper.

In this investigation particular interest has centred round certain cases of acute enteritis in children, complicated by oedema, the majority of which were found to be subjects of a colon bacilluria. There is apparently no obvious connexion between the bacilluria and the oedematous state. 1. The colon bacillus may be cultivated from the urine of many severe cases of summer diarrhoea uncomplicated by oedema, as was demonstrated bacteriologically on numerous occasions. 2. A state of lowered resistance to infection, due to diseases other than acute enteritis, may afford an opportunity for the colon bacillus to effect a lodgment in the urinary tract. In four of the enteritis cases, which terminated fatally, neither necropsy nor the microscope revealed any renal or cardiac condition to which the oedema might be attributed. Naked eye, the kidneys showed very little, while microscopically there was merely cloudy swelling in the protoplasm of the cells lining the spiral and convoluted tubules.

One patient in the surgical wards presented renal changes of more interest. The case was pyonephrosis with colon bacilluria, and death was due to general peritonitis. Tubercle bacilli were not found in the urine, and there was no post-mortem evidence of tuberculosis. Both kidneys showed punctate hæmorrhages and were riddled with small abscesses. While the glomeruli were little affected in the convoluted tubules many cells had lost their nuclei, and the protoplasm was granular, broken down, and destroyed. The abscesses consisted of a limiting membrane of compressed renal epithelium bounding a collection of inflammatory cells, which was broken down into a granular detritus at the centre. These cell collections included a fair number of polymorphonuclears, but mononuclears predominated. In this group are included two cases of bacilluria due to Day's paracolon organism and one to the bacillus of Gaertner. Once also a case of enteric fever was detected through a bacteriological examination of the urine.

In three or four instances a bacillus which I am unable to identify was isolated. It was non-motile, Gram-negative, never liquefied gelatin, formed a white colony on neutral red agar, and gave no indol reaction. It grew without producing either acid or gas in maltose, mannite, lactose, dextrose, dulcitol, McConkey, cane sugar, raffinose, and salicin. Some authors speak of a variety of *B. coli* termed "non-aerogenes." Its pathogenicity to animals has not been tested.

Infections due to B. Proteus Vulgaris.

Braxton Hicks, Dudgeon and Ross have all recently drawn attention to the rarely manifested pathogenic powers of this saprophyte. There are 19 instances in which *B. proteus* was cultivated from a catheter specimen. One of the patients had pyuria and quite a sharp attack of cystitis, but in none of the others were there any clinical symptoms pointing to the urinary tract. In this total were 8 cases of summer diarrhoea complicated by œdema, 3 others not so complicated, and the remainder included such varied disorders as constipation, bronchopneumonia, measles, and appendicitis. As regards sex distribution 10 were boys and 9 were girls, which is in contrast to the results obtained for *B. coli*. It was found that the cultural reactions of this group were extremely variable in the litmus sugar media; indeed, the chief diagnostic point lay in the isolation of a Gram-negative bacillus with the power of liquefying gelatin. Five strains gave an indol reaction out of 12 tested. Beyond the fact that this bacillus was found in certain cases of acute enteritis, the majority of which had œdema as well, it was of no interest.

The Presence of Staphylococci.

Staphylococci alone were isolated 25 times from pathological urines. The diseases concerned included œdema after enteritis (4), enuresis (2), uncomplicated acute enteritis (1), and other examples were multiple arthritis, acute mastoid, cystitis, acute nephritis, purpura, spasm of the sphincter vesicæ, pneumonia, and pleurisy.

The fact that staphylococci only were cultivated from four cases of œdema after acute summer diarrhoea and vomiting shows the need for caution in connecting this symptom in any way with the bacteriological state of the urine. As a rule, there is no reason to attach any importance to the presence of urinary staphylococci which give a coarse white colony on agar. The circumstance that staphylococci may be cultivated from control urines

quite discounts their value as etiological factors in pathological conditions, as does also the great diversity of the pathological states in which they are found and their low degree of virulence. Some attempt was made systematically to examine these cocci upon a few media with the following results:

Gelatin slope...	19 strains : no liquefaction. 6 strains : liquefaction.
Litmus milk...	13 strains : acid. 10 strains : acid and clot. 2 strains : no change.
Maltose...	All acid.
Mannite...	22 strains : no change. 3 strains : acid (usually slight).
Red broth...	Out of 11 strains tested reduction occurred in 3.

In 7 examples which clotted milk there was partial or complete decolourisation as well. All these cocci gave a white colony on agar. Most of the cultures were kept a week under observation at 37° C. Lactose was acidified on every occasion when used. Raffinose, salicin, and inulin were also employed, but the results were too inconstant to be of any value. Out of the 3 strains attacking mannite 2 only produced slight acid formation after five days' incubation.

On reference to the table given by Gordon on p. 144 of his translation of Abel's "Handbook of Bacteriology" it was found that out of these 25 urinary white staphylococci 3 strains gave the reactions of *S. epidermidis albus*, 11 those of "a staphylococcus sometimes found on the skin," and 10 other strains were slightly atypical according to the Gordon tests. Most of these atypical examples conformed to the reactions of "a staphylococcus sometimes found on the skin," except that a clot was produced in litmus milk, usually after some days' incubation, and not in any case sooner than three days. The net result would therefore appear to be that these urinary white staphylococci are closely allied to the white staphylococcus of the skin. If the Gordon tests are applied with care and an absolute mechanical uniformity in results is not expected, they are decidedly valuable as a help in classifying the staphylococci.

In his researches on the bacteriology of the urine in rheumatoid arthritis Warren Crowe has isolated with great constancy an organism which has now finally received the name of *Micrococcus deformans*, and the cultural characters of which are now pretty well known. Outside the group of diseases to which Crowe has directed his attention I am not sure that the *M. deformans* is commonly found in the urine, but as regards the bacteriology of the urine in the class of case to which Crowe has devoted himself I have no experience, and must refer those interested to the original papers.

Shortly after I became acquainted with this new work a sample of urine from a child suffering with rheumatic pains, slight sore throat, and some tenderness together with swelling of the joints, was sent for examination. I communicated with Dr. Crowe, sending him the white staphylococcus isolated. He very kindly worked it out for me and we found that it was identical in cultural characters with *M. deformans* or staphyloid coccus A. From this point onwards all the urinary staphylococci obtained to the number of 14 were examined as to the nature of the colony produced on neutral red egg, with the result that only one proved to be *M. deformans*. The colonies from the remaining

13 examples on egg media were at first rose red, but soon had the appearance of a flat orange-coloured growth, which later on changed to pale cream or even to white after some days in the incubator. These growths were quite distinct from the flattened, deeply indenting rose-red colony proper to *M. deformans* and obtained in two of my cases. Crowe describes *S. albus* as rare in the urine and forming a vivid orange growth on neutral red egg. The use of neutral red egg seems to be the crucial test for the presence of *M. deformans*, as agar is useless for this purpose. Crowe hints that *M. deformans* may be a member of that group of white staphylococci which are encountered on the human skin. I had also come to a similar conclusion with regard to the white staphylococci isolated in the present series of urines after using the Gordon tests. Apparently the clotting and decolourisation of litmus milk² is not so sure a guide as the use of the neutral red egg medium, which was made up in accordance with Dr. Crowe's directions. The question requires further investigation, but at the same time some reasonable doubt may be entertained as to whether the *M. deformans* can be isolated so frequently from the urines of non-rheumatoid subjects, while it looks as if some variety of *S. albus* was fairly common.

In conclusion, I desire to thank collectively the staff of the East London Hospital for Children for permission to make free use of all their cases.

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² Dudgeon and Pantón have described a diplococcus isolated from the urine having this cultural characteristic, *THE LANCET*, Dec. 16th, 1911, p. 1696.

UNIVERSITY OF MANCHESTER.—An eventful winter session has now been brought to a close. In the Michaelmas term there were no lectures on Wednesdays and Saturdays, but with the new year in the medical school the usual routine of lectures was restored. The senior medical students have been doing yeoman service in the infirmary, where the scarcity of residents has been felt.—Professor A. E. Boycott has transferred his services to London, and the University has found a successor in Henry Roy Dean, M.D. Oxon., F.R.C.P. Lond., professor of pathology in the University of Sheffield. It has not yet been determined when the new professor will enter on his duties, whether during the summer term or in October.—The University has issued a first and as yet incomplete list of past and present members of the University who are serving with the colours. The total number so far known to be serving is 765, made up as follows: members of the staff (42): army, 12 commissioned officers, 4 privates; R.A.M.C., 26 commissioned officers. Past and present students (723): army, 331 commissioned officers, 238 privates; navy, 12 commissioned officers, 17 privates; R.A.M.C., including A.V.C., 111 commissioned officers, 14 privates. The University has to regret several losses, including Captain Frank Forrest, R.A.M.C.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on March 5th, Dr. W. JOHNSON HORNE being in the chair.

Dr WILLIAM HILL showed a female patient, aged 25, with an Angioma (bleeding polypus) at the anterior end of the nasal septum, for which eradication by surgical diathermy was proposed.

Dr. L. H. PEGLER showed X ray photographs illustrating the thoracic appearances in a case of Left Recurrent Paralysis associated with Mitral Stenosis. The patient (deceased), a Jewish girl aged 19, went to the Metropolitan Throat Hospital in July, 1914, complaining of hoarseness on waking and vocal disability since the previous January, due to paralysis of the left vocal cord, which was fixed. She was admitted to the Brompton Chest Hospital on August 11th under the care of Dr. W. C. Bosanquet, who lent the photographs shown. She died at home four days after her discharge, having developed all the symptoms of acute laryngitis. On admission the girl, who had suffered formerly from rheumatic fever, complained of cough, pain in the left breast, and shortness of breath. A long presystolic murmur was audible at the apex, with thrill. Posteriorly, some râles at the bases of both lungs. The temperature remained at about 100° F. all the time; no tubercle bacilli in the scanty sputum. Dr. Dundas Grant by direct bronchoscopy found no abnormal pulsation. Dr. S. Melville X rayed the thorax on August 17th and reported: "Heart enlarged, purse-shaped. Above the left border is a well-defined shadow more or less in situation of right ventricle. Aorta wider than normal." In the absence of a necropsy the intimate relationship between the cardiac conditions and the recurrent paralysis must remain a matter for speculation. Sir StClair Thomson in his book, said Dr. Pegler, quotes Ortner as the first to describe this rare complication of mitral disease, and states that 37 more have been published since, but the instances are few in which the causal relationship has been established post mortem.—Dr. F. DE HAVILLAND HALL stated that he had seen a case in which he believed that the paralysis was caused by dilatation of the left auricle.—Sir STCLAIR THOMSON and Dr. DUNDAS GRANT pointed out that there were very few cases in which it had been proved that the paralysis was due to direct pressure of the heart.

Dr. PEGLER also showed four specimens of Superior Maxillæ exhibiting abnormal conditions of the nasal fossæ and maxillary antra.

Mr. CECIL GRAHAM produced a report from Dr. E. H. Kettle on the case of Tuberculous Inferior Turbinate shown at the last meeting, and also exhibited microphotographs with tubercle bacilli present.

Mr. G. SECCOMBE HETT showed a soldier who had been wounded in the face, the bullet having passed through both antra and caused suppuration which was afterwards cured by the Caldwell-Luc operation.

Sir WILLIAM MILLIGAN reported a case of Bone impacted in the Left Bronchus for six months which he removed by upper bronchoscopy with successful results. He also exhibited a microscopic section of a subglottic tumour (lymphangiectasis) invading the upper part of the trachea. It was pointed out that although tracheal growths are very rare, tumours of the subglottic region are much more common. He also showed photographs of a large dentigerous cyst of the lower jaw cured by operation.

Mr. H. L. WHALE showed a female, aged 52, suffering from a large Perithelioma of the Maxillary Antrum, the growth having recurred five months after operation.

Mr. C. W. M. HOPE showed two cases of Esophageal Stricture in children aged 7½ and 18 months respectively. There had been no history of trauma in either case, and he considered that the condition was of the same type as congenital hypertrophic stenosis of the pylorus. Both children had suffered from daily vomiting since birth but were not emaciated. After treatment with bougies the vomiting ceased and soft solids could be swallowed for the first time.

Dr. DAN MCKENZIE exhibited an Oesophagus from a child, aged 2½ years, showing cicatricial stenosis caused by swallowing half a teacupful of a poison for bugs.

Mr. W. STUART-LOW showed a patient (seen at the last meeting) suffering from Epithelioma of the Tonsil, to illustrate the results which he had obtained by puncturing the glands in the neck with the diathermy needle.

Dr. DUNDAS GRANT exhibited a Rabbit's Vertebra which he had removed from the right lower bronchus by superior bronchoscopy.

Mr. W. M. MOLLISON showed a patient upon whom he had operated for Epithelioma of the Larynx, who was now suffering either from recurrence or from granuloma in the anterior commissure.—Sir FELIX SEMON stated that in such cases it should always be the rule to remove a piece for microscopical examination before undertaking a second operation, as in many instances the tissue was found to be non-malignant.

Dr. IRWIN MOORE showed a patient with an Early Nasopharyngeal Growth, probably a vascular fibroma.

Mr. C. A. B. HORSFORD showed a patient with Early Epithelioma of the Vocal Cord causing slight impairment of mobility.

SECTION OF ELECTRO-THERAPEUTICS.

Exhibition of Cases and Specimens.

A CLINICAL meeting was held on March 19th, Dr. IRONSIDE BRUCE, President of the section, being in the chair.

Dr. E. P. CUMBERBATCH showed two patients whose malignant growths (of the tongue and cheek) had been cured by the use of diathermy, though both had been pronounced inoperable by ordinary surgery. The diseased areas now looked quite healthy. In reply to questions, he said he used a current of 1.4 milliamperes, and general anaesthesia was employed. He described his technique.

Dr. C. RUSS showed two exhibits: (1) Bacteria Moving during Electrolysis; and (2) Changes Produced in Bacilli Coli after Electrolysis. There was a control slide from an ordinary case of coli cystitis and another showing the bacteria after several weeks' treatment of such a case, the elongation of the bacilli being plainly evident. There were also changes in the reaction to the Gram stain, showing there was an alteration in the chemistry of the bacterial envelope. Other slides showed the changed form of the colon bacilli due to the continuous passage of a weak current (1/15th of a milliampere) through the tubes containing the bacilli in a fluid closely approximating to that in the bladder. The lack of virulence of the changed bacilli was quite evident.

—Dr. ETTIE SAYER described a case of Streptococcal and Pneumococcal Diarrhoea in which electrical treatment following the use of an autogenous vaccine resulted in a similar elongation of bacilli to that described by Dr. Russ.—Dr. C. H. BROWNING discussed the question, alluding to the similar work of Dr. Ainley Walker at Oxford in the case of typhoid fever. The same attenuated effect could be brought about by means of inhibitory sera.

Mr. LINDSAY LOCKE demonstrated the removal of foreign bodies from the tissues by means of the Ironside Bruce X ray director and described the technique.

Dr. W. J. TURRELL exhibited some simplified electrodes for diathermy and static treatment, and Dr. W. J. S. BYTHELL showed a series of interesting skiagrams of bullet wounds of the skull. Some of the cases showed no cerebral or nervous symptoms, though the bullet was still *in situ* (resting on the tentorium in one case and embedded in the petrous bone in another). In others, where a shattering effect had occurred and there was much brain damage, death had occurred or was imminent.

Dr. ROBERT KNOX showed prints illustrating diagnostic points in a case of new growth of lung and one of malignant disease of the stomach. He also exhibited a remarkably good skiagram of a dermoid cyst containing hair, teeth, and bone.

Dr. ANNESLEY ECCLES showed skiagrams of a girl, aged 3½, who swallowed a foreign body, which was afterwards found to be a pin in the left bronchus, with the point directed upwards. Removal was effected by means of the bronchoscope, which was used with difficulty owing to the small size of the air passages.

Dr. STANLEY MELVILLE showed, by means of a selection of skiagrams, the value of "tidal percussion," as taught by Sir Robert Philip, of Edinburgh, as an early diagnostic sign

of pulmonary tuberculosis. He had found it specially useful in screen examinations. He hoped members of the section would investigate the matter further.

Dr. J. A. CODD showed a useful modification of the tubestand, which enabled a better application to be made to such regions as the axillæ and the root of the neck. He also demonstrated his method of making tracings of the shape of the stomach at various periods in different colours. The drawings were made to overlap and the colour distinction enabled a ready comparison to be made.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Etiology of Diphtheria.

A MEETING of this society was held on March 12th, Mr. HERBERT JONES, the President, being in the chair.

Dr. W. G. WILLOUGHBY read a paper on the Etiology of Diphtheria, in which he dealt with the incidence of the disease among similar classes of people living on different soils. After stating that Löffler's discovery of the specific bacillus of diphtheria enabled him to claim in 1884 that he had satisfied the three postulates of Koch with reference to the relation of a micro-organism to a disease, he maintained the fact remained that though we could not have the disease without the bacillus, yet many individuals harboured the bacillus without suffering from the specific disease, and until we knew what conditions other than the bacillus of diphtheria were necessary for the production of the disease, or what caused the bacillus to become pathogenic, the disease would not be stamped out. He had frequently noticed that the cultures from an infected throat where the patient had no, or very trifling, symptoms were more free from secondary bacteria than the cultures from a severe case, and also that in cultures from cases waiting for discharge from hospital where the patient had been clinically well for some time, but where the bacilli were persistent, cultures were obtainable most free from other organisms and most perfect as specimens of diphtheria morphologically. Referring to the discussion at the Blackpool Congress of the Royal Sanitary Institute last year, when Dr. Hugh Snell gave a careful compilation of figures showing that apparently there was less diphtheria in those districts where institutional treatment was not adopted, he expressed the opinion that the true explanation of these figures was district immunity, and that diphtheria was of such varied incidence according to locality that one district could not be compared with another. Whatever was left undone in a non-diphtheria district there would obviously be less diphtheria than in a district where the disease was endemic. He then gave an interesting comparison of the relative incidence of about 1100 cases which had occurred during the past 20 years on houses of the same class and occupied by persons of about the same social position situated respectively on alluvium, on the beach, and on the chalk. Among the houses on the alluvium 46 per cent. were affected and 56 per cent. of the cases occurred; among those on the beach 24 per cent. of the houses were affected, and 21 per cent. of the cases occurred; while among the houses on the chalk 30 per cent. of the houses were affected and 23 per cent. of the cases occurred.

Dr. J. T. C. Nash expressed the opinion that second attacks with no clinical symptoms might possibly account for epidemics. He had found that there was no difference between the susceptibility of healthy and weakly children.

Dr. J. J. PATERSON said that in the East Berkshire district dampness of sites did not alone account for endemicity of diphtheria. In the past six or seven years most of the cases occurred in low-lying districts on the riverside where ground water was always high and fluctuating, but in another part away from the river where the ground was even more water-logged on account of an impervious crust or "pan" between soil and subsoil there were comparatively few cases, and these of a sporadic nature.

Dr. VEITCH CLARKE considered that the power of resistance of individuals was too often overlooked.

Dr. SIDNEY LAWRENCE advocated keeping a stock of antitoxin for the use of practitioners at fire-stations.

Dr. CHARLES PORTER thought that far too much importance was attached to the taking of swabs from contacts.

Dr. ORR agreed that soil had a material effect on the spread of diphtheria through the dampness lowering vitality.

Mr. T. W. N. BARLOW said that in Wallasey swabbing was not methodically practised in hospital, and return cases were infrequent.

The PRESIDENT was not convinced that the general swabbing of children in an affected school had much effect in reducing the number of cases of the disease.

Dr. H. N. HARDING, Dr. H. J. CATES, and Dr. C. SANDERS also took part in the discussion.

HUNTERIAN SOCIETY.

Exhibition of Cases and Specimens.

A MEETING of this society was held at the Royal Hospital for Diseases of the Chest, City-road, E.C., on March 10th. The proceedings were all clinical, and full use was made of the resources of the hospital not only in clinical and pathological material but also for demonstrations, the new out-patient building with museums and lecture-room and well-equipped pathological laboratories, radiology and cardiology rooms being requisitioned.

Dr. A. C. JORDAN gave a fluorescent screen demonstration illustrating the examination of the lungs, heart, aorta, posterior mediastinum, œsophagus, and stomach.

Dr. A. W. STOTT gave a demonstration of the electrocardiograph, showing tracings from cases of heart-block, &c.

Dr. CARNEGIE DICKSON showed in the pathological department recent specimens from a case of Thoracic Aneurysm and a case of Sarcoma of the Left Chest, spreading from the glands at the left root. The wall of the left auricle had been destroyed on one side by the growth, which had in part replaced it. Both these specimens were compared with skiagrams taken during life. Microscopic preparations were shown illustrating cerebro-spinal meningitis, both the meningococcus and the meningococcal leptothrix being demonstrated. Dr. Dickson also demonstrated the technique of the Wassermann reaction.

Dr. JORDAN exhibited a series of war injuries on the epidiascope, and Dr. D. BARTY KING exhibited some illustrations from Professor Ghon's book, of which he has just completed a translation. Dr. King also showed a skiagram to explain a form of recurring local bronchopneumonia in children difficult to distinguish clinically from chronic pulmonary tuberculosis.

Dr. A. T. DAVIES and Dr. R. MURRAY LESLIE showed some interesting heart cases in the wards of the hospital. In two cases of paroxysmal tachycardia exhibited by Dr. Leslie marked benefit had followed specific treatment, instituted in each case after a positive Wassermann reaction had been obtained. Dr. Leslie also showed a man who suffered from two or three attacks of true angina pectoris every day—a disease scarcely ever encountered in hospital practice.—Dr. DAVIES showed two cases of complete Heart-block, the auricles and ventricles beating with independent rhythm. In both cases the rate of auricular and ventricular beat was obtained by counting in the X ray room, by the polygraph, and by the electrocardiograph. The results obtained by these three different methods agreed very closely.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Exhibition of Patients.—The Role of High-Frequency Current in the Treatment of Tumours of the Bladder.

A MEETING of this section was held on Feb. 26th, Dr. F. CONWAY DWYER, the President, being in the chair.

Mr. W. S. HAUGHTON, in showing a case of Double Congenital Dislocation of the Hip treated by the Lorenz Method, said the treatment extended a little over two years, which was about double the normal time required. The delay was due in the first instance to gastric attacks, and then to an attack of measles. Double dislocation cases always took longer to treat, as the stages had to be gone through more gradually. Skiagrams before the treatment and during its progress were exhibited, and attention was directed to the relation of the head of the bone to the acetabulum, the development of the bone, the development of the femur, and the development of the acetabulum.

Mr. W. C. STEVENSON showed a similar case treated by the same method. He said that the left hip was easier to reduce than the right, and it was also found easier to keep in position. The right hip had only recently been taken out of plaster. Massage treatment was now being carried out in order to develop the strength of the leg.

Mr. SETON PRINGLE, in showing a case of Arthroplasty of the Knee for Bony Ankylosis, said he believed it was the first one of the kind done in Dublin, and it had been a hopeless failure. The man, some two years ago, had accidentally stuck a penknife into his knee-joint. The joint became septic, and nine months afterwards he had bony ankylosis, with the leg almost at a right angle. Mr. Pringle had been reading of Murphy's work, and he decided to try arthroplasty. The technique was carefully followed. The essential points of the operation were to remove the old articular surface and remodel the bones, and then to turn in from the tibia and femur flaps to cover the bones. The leg was then put up with an extension of 20 lb. on it for from three to five weeks, after which time the patient was allowed to develop active movement. When the patient was permitted to leave the hospital he had a fair amount of movement in the joint. He wore a splint and used crutches for some time, but about four months after operation he gave the joint a wrench. There was now very little movement in the joint, and it was very painful. X ray photographs of it before and after operation were shown. He believed the operation could be done with a successful result. Murphy had not published a long list of results, but stated that a large number of cases did well, and that others did not do well.—The PRESIDENT remarked that the operation was very new in Dublin, and the evidence furnished in this case was valuable.

Mr. ADAMS A. MCCONNELL read a paper (illustrated by intravesical photographs) on the Role of the High-frequency Current in the Treatment of Tumours of the Bladder. He had treated several cases by this method since he learned the technique from Beer in New York three years ago. After relating the histories of four cases, and illustrating the course of the treatment by intravesical photographs and by radiograms, he came to the following conclusions. The high-frequency current is the method of choice for the treatment of vesical papillomata which are small in size, apparently benign in nature, and in patients who are not good subjects for an anæsthetic; it relieves the symptoms and checks hæmorrhage from inoperable carcinomata of the bladder. It may be used with advantage as a preliminary to operation in patients anæmic from much bleeding. After operation it should be used to remove recurrent growths as soon as they can be seen with the cystoscope. He advocated the removal of villous tumours by operation and routine cystoscopic examination at intervals of a month for some years afterwards. It was irrational to wait for symptoms before making a diagnosis of recurrent growths, for papillomata may remain in the bladder for long periods without producing hæmorrhage. Mr. McConnell demonstrated the working of the apparatus.—The PRESIDENT said he believed this to be the first communication on the treatment of the bladder by this method. The surgical treatment of these cases was not satisfactory. He thought Mr. McConnell had brought out very clearly the great value of this treatment and its limitations not only for the treatment of tumours, but for their after-treatment.—Mr. PRINGLE had treated one patient by this method whose tumour occupied practically two fields of the cystoscope, and it was now over a year since the treatment, and there was as yet no recurrence. The treatment did not disturb the patient and did not cause pain. He would advocate its use in all cases of clinical epithelioma as a curative measure, not as a pre-operative method.—Mr. C. A. BALL, with regard to the question of recurrence of vesical tumours after operation, mentioned a valuable suggestion—i.e., washing out of the bladder with an antiseptic strong enough to kill any cells that may be left after the removal of the tumour. This, he thought, might diminish the possibility of recurrence. He considered that a tumour might be present for a long time before it produced bleeding.—Dr. W. M. CROFTON asked if radium tubes had been used for treating vesical tumours, as it struck him that they might be malignant.—Mr. A. J. MCA. BLAYNEY said that the ease of the transperitoneal operation depended upon the constitutional habit of the patient. It was easy in thin subjects but difficult in fat ones. The high-frequency method should be recognised as the one for dealing with papillomatous tumours.—Mr. MCCONNELL replied.

Reviews and Notices of Books.

Essentials of Human Physiology.

By D. NOËL PATON, M.D., B.Sc. Edin., F.R.C.P. Edin., F.R.S., Professor of Physiology, University of Glasgow. Fourth edition, revised and enlarged. London and Edinburgh: W. Green and Sons, Limited. 1914. Pp. 557. Price 12s. net.

ABOUT seven years have elapsed since the third edition of this work was issued. The number of pages has been increased from 477 to 557 and the figures from 181 to 213, some of these having with advantage been redrawn; some of the sections have been rewritten, others rearranged; and greater prominence has been given to those parts of physiology which bear more directly upon medical and surgical practice, while there are references to the disturbances of function which occur in morbid conditions. The importance of practical work is rightly emphasised, and in the text references to this matter are constantly met with. We take it that other publications by the author deal with this aspect of the subject.

This edition is practically on the same lines as the previous ones, and the schematic diagrams are more or less those that most teachers of physiology sketch on the blackboard during lecture. Many are simple and effective, and the author has done well to increase their number. Too elaborate diagrams obscure what simple diagrams make clear. In the reference to calcium salts and blood coagulation it might be well to state that the oxalates to be added are soluble oxalates. Reference to the fungiform papillæ of the tongue seems to be omitted. The statement that the parotid "opens on the side of the cheek" seems rather vague, and so is the following: "On each side between the mouth and the pharynx is the tonsil." The formula of cholesterol—in this edition cholesterol—is given as $C_{26}H_{48}OH$. Other observers give $C_{25}H_{47}OH$. In connexion with the reference to jaundice it might be well to state that there are other causes besides the one mentioned. In the summary of the functions of the liver nothing is said about its relation to blood clotting. We are glad to see that dietetics and foodstuffs generally and their metabolisms are dealt with in a lucid and practical manner. A much fuller account is now given of the nervous and chemical regulators of metabolism commensurate with the advances in this very practical field of study. Just a little over 20 pages are given to excretion by the kidneys, and the urinary tests are practically omitted, as the tests for the various constituents of the urine must be studied practically.

This edition is a decided improvement on its precursors, and gives a fair, all-round, lucid, and attractive exposition of the so-called "essentials" of physiology in a manner which will appeal to students.

Dreams.

By HENRI BERGSON. Translated, with an introduction, by EDWIN E. SLOSSON. London: Fisher Unwin. 1914. Pp. 62. Price 2s. 6d. net.

THIS is a translation of a lecture on the theory of dreams which Professor Bergson delivered before the Institut Psychologique on March 26th, 1901—i.e., some 14 years ago. It has not, apparently, been altered by him in any way, though in a footnote on page 39 he refers (1913) to Professor Freud's work and to the development of methods of psycho-analysis in recent years.

Professor Bergson shows first that external stimuli of various sorts, visual, auditory, tactile, &c., impressions which pass unperceived in the waking state, reach the mind and form the materials of our dreams, but do not suffice to produce these dreams, mainly because they are vague and indeterminate. He asks, "What is the form that will imprint its decision upon the indecision of this material?" and answers, "Our memory." Memories weave the web of our dreams, old forgotten memories, fragmentary it may be, memories of objects perceived unconsciously during the distractions of waking life. In this latter state memories are as it were organised, closely connected with the situation, occupation, or action of the moment. A thousand other memories are crowded out, but let the individual become disinterested in his situation or action, let him sleep, in other words, and these memories "arise from the depths: they rise, they move, they perform in the night of unconsciousness a great *danse macabre*. They rush together to the door which has been left ajar." Not all, of course, emerge from unconsciousness, but those emerge which can assimilate themselves with the external and internal sensations that are then reaching our sleeping mind, and when this union is effected between the memory and the sensation we have a dream.

Professor Bergson believes that all our memories, good and evil, pleasant and unpleasant, are thus stored away, and his conception is a wider and more philosophical one than that of Professor Freud, for whom the dream is symbolic of desires or fears which we refuse ordinarily to admit to consciousness, inasmuch as they are either painful or morally repugnant. In his preface the translator briefly indicates the divergence between the two theories in this respect.

Considerations of space make it impracticable to enter on a detailed criticism of Professor Bergson's little book. We feel that he is unnecessarily landing himself in difficulties when he asserts that the creative dream, so-called, is not really a dream, or that that part of ourselves which then labours is not the same as that which sleeps. It may be questioned, further, whether in waking life our memories of the moment inevitably derive from what we are then thinking or doing; but much of the meaning of the author's distinction between waking and dream processes depends on the assumption that this is so. The volume is characterised by that lucidity of thought and expression and grace of style that we have come to associate with the work of its distinguished author.

Recreations of a Physician.

By A. STUART M. CHISHOLM. London and New York: G. P. Putnam's Sons. 1914. Pp. 328. Price 7s. 6d. net.

Dr. Stuart Chisholm, an American medical man, gives us in his "Recreations of a Physician" a delightful series of ten essays on subjects so varied as Specialisation, Physicians as Men of Letters, Banquo, the Symbolism of Names, Royal Authors, the Inherent Spirit of Medicine, Translations of Horace, Some Features of the Science of Medicine in the Seventeenth Century, the Picard in Fiction, and the Prevention of Disease. In the essay on Horace the author's graceful translations of *Jam Satis Terris* (I. 2) and *Quis desiderio* (I. 24) are worthy of notice. They illustrate, however, in places the extreme difficulty of accommodating the rhythm of a tongue that knows not quantity (in the classical sense) to the requirements of metres that depend entirely on quantity for their swing. For

example, the dactyl in the lesser Sapphic Ode hardly comes trippingly from the tongue in such an English line as—

Which in | Persian | warfare would | better | glisten

Unless, indeed, it were hideously slurred—

Which in | Persian | warfer 'ud | better | glisten.

The corresponding double choriambus of the third Asclepiadean Ode, however, reads better—

Who shall | measure our tears | who be ashamed | to grieve.

We note a curious error on p. 21, where St. Andrews University, Edinburgh, is mentioned. We suppose the error arose from the association of St. Andrews with Edinburgh in Parliamentary representation.

There are points in the article on Specialisation to which exception must be taken. It is surely hardly correct to say, as the author does (p. 5), that while scissors and forceps were discovered in excavations at Pompeii, "the only knife known to the early anatomists was the razor. The invention of the scalpel was due to either Fabricius or Cæsalpinus, both teachers of anatomy in Padua in the latter part of the sixteenth century." In his "Surgical Instruments in Greek and Roman Times" Dr. J. S. Milne devotes an entire chapter to the knives used by Greek and Roman surgeons, the various forms of which, including scalpels, bistouries, fleams, and lancets, are profusely illustrated. Many specimens are to be seen in the British and other European museums. In the Wellcome Museum of History of Medicine, for instance, are two undoubted bronze Græco-Roman scalpels. Plate IV. in Dr. Milne's book shows also an ex-voto tablet now in the museum at Athens which was found on the site of the Temple of Æsculapius on the Acropolis. On this tablet is carved an open surgical dressing-case that looks remarkably modern, and contains besides curved and straight bistouries an instrument apparently having a tenaculum at one end and an aneurysm needle at the other. A much more serious matter is the author's revamping (p. 5) of the old, widely disseminated, but now discredited story that Pope Boniface VIII. in his Bull *De Sepulturis* issued a decree against dissection to which is attributed the supposed antagonism of the ecclesiastical authorities to practical anatomical study. The Bull itself completely negatives the idea that it had any reference to anatomical study, and the subsequent history of events shows that it had no influence thereon. It is remarkable how erroneous ideas, originated sometimes out of pure malignity, sometimes out of ignorance more or less culpable, will persist and be reiterated, presumably in good faith, long after their foundations have been completely demolished. Dr. Chisholm also repeats the story of the persecution of Vesalius by the Inquisition, which it has been alleged led to his ill-fated pilgrimage to the Holy Land. In a monograph by Dr. G. Matheson Cullen, recently reviewed, both these particulars in the life of Vesalius will be found fully dealt with.

La Stase Intestinale Chronique.

Par le Docteur E. SORREL, Ancien Interne, Lauréat des Hôpitaux de Paris et de l'Hôpital Maritime de Berck-sur-Mer. Paris: G. Steinheil. 1914. Pp. 252.

In this country there has been much discussion on the views which were first brought forward by Sir Arbuthnot Lane on the importance of chronic intestinal stasis and the appropriate treatment for this condition; in other countries

many have definitely adopted the view that this condition is productive of serious conditions. In the British Isles the opinion appears to be steadily gaining ground that the importance of the condition has been but little overrated, and that operative treatment offers in most cases the best procedure. In France very little has been written on this subject, and the book before us is the first in that country to be devoted entirely to chronic intestinal stasis. The author accepts practically in their entirety the views which have been so ably advocated by Sir Arbuthnot Lane; he discusses the anatomy of the parts concerned, the etiology of the stasis, the symptoms and the treatment; and he concludes his treatise with a large number of cases of the condition, for the most part culled from medical literature, but also containing several cases which have been under his own care. His conclusion as to the treatment may be summarised as follows: If adhesions which interfere with the onward passage of the intestinal contents are few in number they may be divided, but in all other cases one form or another of intestinal anastomosis will be required. A useful bibliography is appended.

The book is an earnest study of the subject.

LIBRARY TABLE.

Transactions of the National Association for the Study of Pellagra. Report of the Second Triennial Meeting. With illustrations. Columbia: The R. L. Bryan Company. 1914. Pp. 409.—The second triennial meeting of the American National Association for the Study of Pellagra was held at Columbia, South Carolina, in October, 1912. The time that has elapsed since the papers were read and their publication in this report in 1914 has robbed some of them of the interest and freshness that they possessed two years ago. Nevertheless, the contributions now printed are, on the whole, of value, and some of them add to our knowledge of the subject. Dr. Rupert Blue, late Surgeon-General of the United States Public Health Service, gave an address on the problem of pellagra in the United States, and Dr. J. W. Babcock, President of the association, contributed a paper in which he discussed the question of how long pellagra has existed in that country, and expressed the opinion that it must have been present in some of the States as far back as 1828. Dr. C. H. Lavinder, of the United States Public Health Service, who is a well-known expert on pellagra, and who has conducted official investigations concerning the disease, supplied a paper on its prevalence and geographical distribution in the United States, and in this he mentioned that within the last six years (up to 1912) at least 30,000 cases had come under observation. Dr. R. M. Grimm, a member of the same Government service, wrote on some facts in the epidemiology of the disease. Among other contributors were two well-known London authorities on the subject—namely, Dr. F. M. Sandwith and Dr. L. W. Sambon. The former discussed the question, Can pellagra be due to a deficiency of nutrition? and the latter, being unable to attend the meeting, sent a paper on some special points of epidemiological interest in pellagra. Several distinguished experts from the continent of Europe also read or sent contributions, and among them may be mentioned Dr. B. Gosio (Rome), Dr. G. Antonini (Milan), Professor V. Babes (Bucharest), Dr. Jean Nicolaidi (Paris), and Dr. Umberto Grillo (Udine, Italy). Some of the

remaining contributors dealt specially with the local history of the disease, its diagnosis and treatment. The volume furnishes a good deal of interesting information on the various aspects of the disease.

The Voyages of Captain Scott. By CHARLES TURLEY. With an introduction by Sir J. M. BARRIE, Bart. London: Smith, Elder, and Co. 1914. Pp. 440. Price 6s. net.—This excellent little volume is a compressed edition of "The Voyage of the *Discovery*" and "Scott's Last Expedition," prefaced by a charming introduction by Sir J. M. Barrie, which gives an account of Scott's boyhood. It is just the book to give a boy, especially at this time, when, to use Lord Beaconsfield's fine phrase, "The youth of a nation are the trustees of posterity." For this is a story of endurance under inconceivable hardships, of a long-sought-for goal at last arrived at, of cheeriness, good fellowship, and every quality necessary to make a nation strong. In Scott's own words, "The combination of individual effort for the common good has achieved our results, and the absence of any spirit of self seeking." There are few accounts of travel more pathetic than Scott's simple notes of the homeward marches on the last journey. Here is the last day's note: Two of the expedition were dead, Evans, who died in his comrade's arms, and Oates, who dragged his weary body out into the blizzard so that he might not be a further burden. Evans died on Feb. 17th, Oates on March 16th, and on March 29th Scott wrote (they had been confined to their tent with a blizzard blowing ever since March 19th): "I do not think we can hope for any better things now. We shall stick it out to the end, but we are getting weaker, of course, and the end cannot be far. It seems a pity, but I do not think I can write more." And that was the end. When the search party arrived in the following summer they found in the tent besides the diary sundry letters, among which were two, one to the wife of Dr. Wilson and one to the mother of Lieutenant Bowers, which in the midst of the long-drawn agony Scott had managed to write.

The Prescriber's Formulary and Index of Pharmacy. By THOMAS PUGH BEDDOES, M.B., B.C. Cantab., F.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1914. Pp. 132. Price 2s. 6d. net.—The second edition of this handy little pocket book, now before us, has been adapted to the new Pharmacopœia. The apothecaries' measure is, however, retained, with such variations from the former edition as are necessary to make them conform to the metric doses in the Pharmacopœia. The internal and regional remedies are now preceded by a synopsis of the alterations in the Pharmacopœia, and followed by a classified list of drugs arranged under their therapeutic properties and a section on the treatment of poisoning.

JOURNALS.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLIX. No. 3. Feb. 25th, 1915. Cambridge University Press. Pp. 113-146. Price 2s. 6d.—The Influence of Temperature on the Secretion of Sweat, by J. M. O'Connor. The experiments were made on the foot of cats anaesthetised with 1-2 grammes ethylurethane per kilo, given by the mouth. The foot was enclosed in a special apparatus through which dry air—about 1½ litres per minute—was sucked. The amount of water was determined by absorption in sulphuric acid. To determine if the loss of water was an active or a passive process the effect of atropine injections was observed, as well as section of the sciatic nerve. The loss of water in the normal anaesthetised cat

seems to be passive, and there does not appear, under the conditions adopted, to be an active secretion of sweat, except under special conditions of temperature. The author concludes that (1) the normal loss of water from the foot of the cat is a passive process; (2) active sweating appears in the cooled anaesthetised animal (a) when the body temperature is raised to about normal, or (b) when the subcutaneous temperature reaches about 43°C. The result points to the conclusion that the former is a protection against a rise of temperature of metabolic origin, and the latter a reflex protection against a local rise in skin temperature.—Observations on Anaesthesia by Phenyl-ethyl Malolyl Urea, by W. L. Symes. This substance is advertised as a powerful hypnotic under the name of luminal. Its sodium salt, which is freely soluble in physiological saline, yields an unstable solution. This drug, dissolved as required, was used to obtain uniform anaesthesia for prolonged periods and without marked diuresis. Animals have been kept unconscious for various periods up to 18 days. Most of the experiments were made on cats and a few on rabbits, the latter being somewhat less susceptible. The results may be summarised as follows: With cats, for experiments lasting 3-5 hours, a subcutaneous dose of 0.2 gm. luminal per kilo is usually sufficient and safe. Except with old cats, anaesthesia is complete within one hour. Since the maximum effect only is produced, 0.15 gm. per kilo may be given subcutaneously or by the mouth in the evening, and if necessary an additional 0.5 gm. per kilo on the following morning 10-20 minutes before commencing the experiment. Cats under luminal are markedly poikilothermic. Unless they are warmed their rectal temperature may fall below 30°C; if they are overwarmed it may reach 43°C. without warning from change in respiration. Cats may, with care, be kept unconscious for days and recover completely. Rabbits are conveniently and rapidly anaesthetised by intravenous injection of a 10 per cent. solution.—Contributions to Physiological Climatology (Part II.), by W. A. Osborne. This is a continuation of a research published in 1910 in the *Journal of Physiology*, in which it was shown that the skin is a moist surface and evaporation from it will be determined in large measure by the physical state of the air, its temperature, humidity, and movements. The present research was carried out in the summer (Australian) of 1912-13 by the methods already used by the author, with the addition of anemometric readings. It was found that despite varying humidity and velocity it is the temperature of the air, under the climatic condition of the experiments, which is the leading factor in skin evaporation.—On the Alleged Influence of Adrenalin and of the Sympathetic Nervous System on the Tonus of Skeletal Muscle, by Yas Kuno. After referring to the two kinds of nerve ends in voluntary muscle, one in connexion with medullated and the other with non-medullated—probably sympathetic—nerve-fibres and their probable physiological significance, the author describes the nature of his experiments, which were made on the excised sartorius of *Rana esculenta*. The sartorius was placed in a Keith Lucas muscle trough, by means of which the muscle can be excited and its contraction registered while immersed first in about 50 c.c. of Göthlin's modification of Ringer's fluid. After a certain time the trough was emptied and refilled with a similar fluid containing varying doses of adrenalin. The author finds that adrenalin up to the strength of 6:100,000 has no appreciable influence on the curve of contraction of the sartorius of the frog. The tonus of the hinder extremities is not altered either by the injection of adrenalin or by division of the rami communicantes, whereas the loss of tonus in frogs after division of the anterior roots of the spinal nerves is always marked by a relaxation of the muscles of the affected side. Muscles which are still in connexion with the spinal cord show on loading a gradual increase in length which may last 30 or 40 minutes. This phenomenon is best marked in "cold frogs." Section of the rami communicantes does not alter the rate at which this takes place, but the phenomenon is practically abolished by previous division of the anterior roots. The muscles of a "cold frog" which are still in connexion with the spinal cord show a marked contraction remainder after each twitch due to indirect excitation. The contraction remainder gradually disappears. Section of the rami communicantes does not alter this phenomenon, but section of the anterior roots almost abolishes it.

THE LANCET.

LONDON: SATURDAY, MARCH 27, 1915.

Shell Explosions and the Special Senses.

OF the many interesting and important types of case which are beginning to emerge from the welter of warfare, as conducted by modern methods to the accompaniment of terrific shell explosions, one is specially deserving of study—namely, the type in which there is traumatic diminution or abolition of function of one or other of the special senses. Data concerning the effect of shell explosions upon taste and smell have not yet been forthcoming in sufficient detail for any conclusions to be drawn; and in any case we should not expect it to be as immediate in its manifestations as the effect upon sight or hearing, and reference will therefore be made mainly to cases of traumatic amblyopia or amaurosis and traumatic deafness. Clinically and pathologically, several groups may be distinguished. There are, firstly cases where the phenomena seem to be the result of inhibition of function, such as is observed when stimulation is intense and prolonged. It is well known, as Dr. JAMES NIVEN reminded his audience in a recent address on the Effect of Noise on Health, delivered before the Manchester Statistical Society, that boilermakers, riveters, blacksmiths, and people working on railways, after a time become deaf to certain sounds as a result of prolonged monotonous noise, especially if it is interrupted rather than continuous. Those terminals of the auditory nerve apparatus which respond to notes of a certain pitch are over-stimulated and their function inhibited, just as workers in snuff mills soon cease altogether to respond to the recurring stimulus of irritating particles on the nasal mucosa. It is quite possible that much more concentrated and rapid stimulation may produce the same effect. Blinding of the retina by direct sunlight is responsible for a series of cases after every big solar eclipse, where the observer has failed to protect his eye sufficiently. It is, then, a general experience, whatever be the sense avenue involved, that from over-stimulation the nerve elements concerned become fatigued and then paralysed. The question at once arises whether there is any actual organic change in such nerves and nerve mechanisms, entailing more or less permanent defect of function, or whether, in the absence of structural damage, this "fatigue paralysis" will disappear. In any given case it may be difficult to decide, but there is little doubt that, both for the eye and ear, severe and concentrated over-stimulation may lead to permanent mischief.

Not always to be distinguished from this group is a second class of case where the disturbance of function is supposed to result from a "commotio," a sudden jar to nerve elements, a "shock," throwing mechanisms out of gear either peripherally or centrally. As there is difference of opinion as to the presence or absence of a genuine organic change (however slight) in cases of "railway spine," of traumatic neurasthenia of spinal type, so is it probable that there will be division of opinion as to the pathology of "commotio" of the special senses. It may be part of a general commotio cereбрalis, or it may be local and peripheral, e.g., a labyrinthine commotio. A number of cases, both civil and military, have been recorded at one time or another where the impact of a projectile has reduced a segment or more of the spinal cord to pulp, though the dura is found to be intact and the bullet has not directly touched either dura or cord. Cases have also been recorded where a heavy fragment of a shell, striking the neck, has produced death by sudden and violent dispersion of the cerebro-spinal fluid within the tough dura, structurally damaging and paralysing the adjacent medullary centres. A sudden and powerful commotio in such cases can effect the most striking organic change. Now it is at least conceivable, and in the opinion of some it is possible, that a sudden jar to nerve elements produced by the violent explosion of a shell in the closest proximity to eye or ear may effect an organic change, very much less in degree, no doubt, but still of the same nature as that above described. A third class of case is clearly of the nature of traumatic hysteria. In regard to this group also, however, it may be questioned whether there may not be some organic basis on which the neurosis is implanted, whether the "shock" does not effect a change the functional expression of which is identical with or comparable to the functional disturbance that we know as hysteria.¹

As illustrating the suggestive way in which this subject may be worked out, reference may be made to a meeting of the Académie de Médecine of Paris on Jan. 19th, when M. LANNOIS and M. CHAVANNE communicated an important paper on total deafness due to the sonorous vibrations produced by shell explosions, of which they had observed 50 cases since the beginning of the war. They attributed the deafness to different conditions. In some cases they considered that it was the result of a kind of inhibition, such as is observed when the olfactory or optic nerve has been submitted to too intense or too prolonged stimulation. The deafness due to this "fatigue paralysis" disappeared in some days. In other cases the ear is not at fault and the deafness is a symptom of cerebral concussion. In still other cases there are hystero-traumatic phenomena, which may take the form of deafness, deaf-mutism, or deaf-mutism and blindness. Such manifestations are relatively rare. They were observed especially in soldiers who had been more or less buried in the

¹The Study of Shell Shock, by Captain C. S. Myers, R.A.M.C., F.R.S., THE LANCET, Feb. 13th, 1915, p. 316.

earth thrown up by the bomb. These different forms were found both isolated and combined into complex types. They also were sometimes accompanied by labyrinthine concussion. The pathology of labyrinthine concussion is ill-defined; there may be simply a labyrinthine commotio, or there may be visible lesions such as hæmorrhage. Labyrinthine concussion may present itself under different clinical aspects. It may coexist with fracture of the skull, the symptoms of which are added to those of the concussion. The fracture may pass through the mastoid and may be accompanied by a lesion of the labyrinth. Labyrinthine concussion may also be accompanied by a rupture of the tympanic membrane. The concussion is frequently attended by loss of consciousness, which is followed by the triad vertigo, tinnitus, and deafness. Nausea and vomiting are rare. All forms of vertigo occur. There may be vertigo in bed, the patient feeling that he is revolving on a horizontal or vertical axis, or there may be loss of equilibrium when standing or walking. The vertigo usually disappears quickly, but the tinnitus is more persistent. The deafness, which is often total at first, frequently remains considerable, the patient hearing only when shouted at. It may be unilateral or bilateral. Bone conduction is diminished and the superior limit of audibility of high notes is lowered. This is the most characteristic sign, and considerable lowering is of bad prognostic significance. The observations of M. LANNOIS and M. CHAVANNE are of great practical interest at this moment.

Housing in Agricultural Districts.

THERE are few problems more difficult, and in some ways few more discouraging, than that of the amelioration of the conditions of working-class housing in agricultural areas in many parts of England. People are apt to regard these areas as identical with "rural districts," and to judge the position from facts and figures relating to the latter. Unfortunately, however, most of the rural districts which show housing progress, in the form of increase in new cottages and of demolition or substantial repair of those which have become unfit for human habitation, are districts in the neighbourhood of large towns or of mining or industrial centres, where the housing improvements have been for the benefit of everyone but the agricultural labourer. Exceptions can, of course, be found on large estates, especially where the owner does not depend mainly on farming for his income; something has been done here and there in connexion with small holdings, and occasionally a rural district council has been induced to provide a few cottages. But for the farm hand or shepherd the total change is small, and in many parts, particularly in the south and west, dwellings of bad original construction are now worn out and past any satisfactory improvement at reasonable cost, while no new building is to be expected either from private enterprise or from local authorities. Damp, dark, overcrowded and ill-ventilated

cottages contribute to tuberculosis, rheumatism, and other conditions which naturally make a direct appeal to the sanitarian. A still more serious result, however, in districts where such houses are the only dwellings available to the agricultural population is their undoubted effect in emptying the country of its more efficient stock, a process which has been actively going on for many years, and does not seem likely to diminish.

A recent book on "Rural Housing," by Dr. W. G. SAVAGE, medical officer of health for the county of Somerset,¹ deserves attention in connexion with these questions. Dr. SAVAGE discusses the causes of the failure of the various Housing Acts, including that of 1909, which in some directions was a considerable advance on its predecessors, to meet the housing requirements of agricultural areas through the action of the local authorities. One of the most important of these causes seems to be the want of central driving power. Many county or district councils would not hesitate to carry out duties laid on them by Parliament if they were subjected to a really effective pressure from the central authority. If neglect entailed their supersession or a prosecution, they would have a conclusive answer to local objectors. The Local Government Board, however, is usually unable or unwilling to go beyond remonstrances, and is probably hampered by its functions as a legal court of appeal in cases of dispute between the local authorities and the property owners. Possibly, as Dr. SAVAGE contends, too much of the direct administration has been put on the rural councils, and too little on the county councils. It is now also generally admitted that under any system dependent on local government the local authorities must receive substantial Government subsidies if they are to build country cottages on a considerable scale. The housing grant proposed by the Government early last year has, however, been dropped as a result of the war, and it is questionable whether the proposals then made took sufficient account of the special requirements of the agricultural districts.

Dr. SAVAGE'S book, besides giving a valuable study of such questions as we have referred to, contains much useful practical advice as to the conditions which justify houses being represented as unfit for human habitation, and the steps which can be taken to bring unsatisfactory houses up to tolerable standards of healthiness. In these matters, as well as in respect of the construction of new labourers' cottages, it will be of special service to medical officers of health, on whom at present rests the burden of making the best use possible of the existing administrative position. At the end of the war probably many men who return will have acquired a distaste for town life and would prefer agricultural work in England to emigration if it could be undertaken under tolerable conditions of comfort, of which a reasonably contrived cottage with a little land is perhaps the chief.

¹ Rural Housing. By W. G. Savage, B.Sc., M.D. Lond. With 32 illustrations. London: T. Fisher Unwin. Pp. 297. Price 7s. 6d. net.

Annotations.

"Ne quid nimis."

THE PRESCRIBING OF NARCOTIC DRUGS.

DURING the last year or two legislative measures designed to restrict the use of narcotic drugs to legitimate purposes have been enacted in many countries, but none of them is so stringent or likely to be so effective as an Act which came into force in the United States of America on March 1st, 1915. This Act, which is known as the Harrison Law, is the most important measure of legislation affecting the sale of poisons that has ever been enacted in America, and there is nothing in English law which is comparable with its provisions. The recent growth of the drug habit in the United States has been admitted by the authorities to have been appalling, and the consumption of opium, morphine, and cocaine over and above that required for medicinal purposes has been shown by official figures to be enormous. The evil, in fact, was sufficiently acute to justify a remedy even more drastic than that which has now been prescribed by law. The purpose of this legislation is to keep under strict control all transactions in certain narcotic substances, and in order to effect this object "every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes, or gives away opium or coca leaves or any compound, manufacture, salt, derivation or preparation thereof" is required to comply with specified conditions. The chief part in this campaign against self-drugging will be played by medical practitioners and pharmacists. All members of both callings must forthwith become registered by the Inland Revenue collectors of their districts and must pay a registration fee of \$1 a year. Every medical practitioner in writing a prescription for any of the prescribed drugs is required to write thereon the name and address of the patient and his own address and registration number, and to sign the prescription with his full name. This should occasion little inconvenience, for it will be quite a simple matter to have the registration number printed on prescription forms, together with the name and address. The prescriptions cannot be dispensed more than once, so that the new law definitely disposes of the problem of the repetition of prescriptions for narcotic drugs. A medical practitioner who dispenses his own medicines or requires any of the drugs in question for his own use will be obliged to write his order on an official form supplied by the Inland Revenue and costing $\frac{1}{2}$ d. each. He must make a record, to be preserved for two years, of all such drugs dispensed by him, which record must include the quantity of the drugs dispensed, the date, and the name and address of the patient. There is, however, a provision excusing practitioners from keeping any record of narcotic drugs which they personally administer to their patients. Apparently the new law does not affect the practice of medical men to any greater extent than has just been explained and, judging from the opinions expressed in representative medical journals in America, there is no noteworthy tendency on the part of the profession to object to fulfil the conditions laid down. The new law prohibits a pharmacist from selling to the public any of the drugs affected except on

the original prescription of a duly qualified practitioner who has been registered by the local Inland Revenue officer, and every prescription must be preserved for two years. Further, no pharmacist may be supplied by his wholesale house with any of the drugs unless they are ordered on an official form; the order must be written in duplicate, the duplicate to be retained for two years, and to be available for inspection by the Federal and municipal authorities. The provisions of the Act do not apply to preparations of opium and coca leaves "which do not contain more than two grains of opium or more than one-fourth of a grain of morphine, or more than one-eighth of a grain of heroin, or more than one grain of codeine, or any salt or derivative of any of them in one fluid ounce, or, if a solid or semi-solid preparation, in one avoirdupois ounce; or to liniments, ointments, or other preparations which are prepared for external use only, except liniments, ointments, and other preparations which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitutes for them." Since most of the official and commonly prescribed preparations contain a larger proportion of the drugs named than is laid down in the exempting provision the exclusion of weak preparations is not a very serious matter. The American experiment will be watched with interest by other countries, and when the world is at peace again it may well be that other countries will follow the American example.

ELECTROCARDIOGRAPHIC STUDY OF THE ANAPHYLACTIC RABBIT.

THE use of the string galvanometer has shed much light on the physiological and pathological action of the heart not only in animals but in man. It has become an almost necessary part of the equipment of every large hospital. So far the cardiac disturbances in serum anaphylaxis have not received much attention. It is known from the researches of Gay and Southard in 1907 that the heart of the anaphylactic guinea-pig often shows hæmorrhages. Later, by inspection and the graphic method, J. Auer, J. Lewis, and others observed definite pathological alterations of the heart's activity during serum anaphylaxis, such as abrupt diminution in rate in the dying heart. The block was thought to be due to asphyxia. Heart block and other cardiac disturbances have been demonstrated in the dog by the electrocardiograph. It would therefore appear that heart disturbances in serum anaphylaxis of the intact animal are common in this state, and apparently form an integral part of anaphylaxis. John Auer and G. Canby Robinson¹ have studied by the electrocardiograph the main changes which the heart of the anaphylactic rabbit reveals to this instrument. The rabbits were sensitised by repeated subcutaneous injections with horse serum. About four weeks after the last injection the animals were given the final toxic dose of about 9 c.c. into a marginal ear vein. The electrocardiograms were taken at short intervals before, during, and after the injection; the Edelmann string galvanometer was used, the right fore and left hind leg being connected with the instrument. Care was taken to separate the cardiac disturbances resulting primarily from the anaphylactic reaction from those which occurred as phenomena of the

¹ Studies from the Rockefeller Institute for Medical Research, xix., 1914.

dying heart, cessation of respiration being taken as the index of death. Intravenous injection of horse serum into non-sensitised normal rabbits showed no such changes in the electrocardiograms as were seen in the sensitised animals. In the latter marked and various changes of the heart's activity were recorded in 22 out of 24 animals. Changes occurred in fatal as well as in non-fatal cases, after the vagi were cut, as well as when they were intact. As cardiac disturbances are thus a practically constant result of serum anaphylaxis in the rabbit, it is possible that anaphylaxis plays a rôle in the causation of certain cardiac derangements in man.

RINGWORM IN THE TROPICS.

At one time it was believed that the ringworm met with in the tropics was the same as that which is encountered in temperate climes. This view, however, does not now meet with acceptance among experts. Lately some further evidence on the subject has been put forward in a recent number of the *Journal of Tropical Medicine and Hygiene* by Dr. Albert J. Chalmers, director of the Wellcome Research Laboratories, Khartoum, and Mr. A. Marshall, the senior bacteriologist. These experts summarise the history of ringworm in the tropics, and point out that at least seven different species of fungi have already been recognised as the causal agents of the disease. They have now found among schoolboys and youths in the Anglo-Egyptian Soudan a new, and as yet undescribed, variety of tinea which they were able to cultivate in various media. This fungus, it appears, belongs to the class of Fungaceæ of Linnæus, called ascomycetes by de Bary; it also belongs to the family Gymnosaceæ and to the genus *Trichophyton*. The authors propose to give it the name of *Trichophyton curri*. The alopecial patches caused by this fungus are small as a rule, and not very noticeable; the prognosis as regards baldness is apparently good, to judge at least by the cases already observed. A number of different remedies were tried in the treatment of this Soudanese form of ringworm, most of which, however, gave only temporary relief; the best results were obtained by the use of a special kind of tobacco-soap (nicotiana-seife) made in Bremen. With regard to prophylaxis it is thought that much may be done by regular and systematic medical inspection of all children in schools with a view to the discovery of parasitic diseases, and by prompt treatment as soon as evidence of ringworm is found. As the disease seems to spread but slowly in a school much may be done by medical inspection and early treatment to arrest the progress of the infection.

PUBLIC HEALTH IN BOMBAY.

For the first time in its history the city of Bombay—the third city in point of population in the British Empire—has had a death-rate lower than its birth-rate. For the week ending Nov. 21st, 1914, the death-rate was 20·49 per 1000, while the birth-rate was 23·25. The quinquennial averages for this week (1909–1913) were, for deaths 30·91 and for births 24·65 per 1000. On account of the war there had been a large exodus from the city; and if, as an allowance for this, the actual population be estimated at 900,000, the respective death-rate and birth-rate work out as 22·30 and 25·30; even so, the death-rate is lower and the birth-rate higher than the quinquennial average. There is no doubt

as to the fact of the exodus on account of the war, but the birth-rate should have been affected as well as the death-rate by this occurrence; on the other hand, there was a considerable influx into Bombay, from all parts of India, of troops and followers, and of pilgrims. No case of infectious disease occurred among the troops during their stay in Bombay, and the sickness and mortality rates were very low, only seven deaths occurring among soldiers of all classes, British and Indian. All infectious diseases were at a minimum; during 14 days only one case of plague occurred, and this was imported. It may be said with reason that the sanitary condition of Bombay has reached a standard of excellence that reflects the greatest credit on those responsible for the health of the city, and gives them every encouragement to persevere in their efforts to maintain it at its high level.

A NEW TYPE OF FRACTURE OF THE ANKLE.

An important paper on a new type of fracture of the ankle has been published in the *Journal of the American Medical Association* by Dr. F. J. Cotton. It was read at the last annual meeting of the Association. There is backwards dislocation of the ankle with splitting away of a wedge, large or small, from the posterior surface of the tibia. The wedge is displaced backwards and carries the posterior tibio-astragaloid ligaments upwards and backwards with the foot. Fracture of the malleoli is associated with the luxation, and hence the condition is often confounded with Pott's fracture. As a rule, the posterior tibial fragment is separate from the malleolar fragments, though sometimes the internal malleolus and posterior tibial edge are included in one piece that is split away in a spiral line. It has long been recognised that certain cases of Pott's fracture are complicated by backward luxation of the foot. Dr. Cotton claims that nearly all these cases are not examples of Pott's fracture but of the condition now described. His attention was first called to it by certain cases of old fracture of the ankle which came under his care for a reconstructive operation. There was extreme backward displacement of the foot, a condition which he had not previously met and could not find described. The lesion had been overlooked and left unreduced by skilled surgeons despite good radiograms. Not only is the lesion not a simple variant of a Pott's fracture, but the attempt to treat it as such is disastrous in a large percentage of cases. A Pott's fracture is bad enough with two sides of the articular mortise gone, but when the astragalus is driven behind the mortise and deprived not only of lateral support but of any vertical bearing the condition is apt to be hopeless unless properly treated. A twist is usually given as the cause of the injury. One patient slipped on the edge of a mat while wrestling. Another twisted her foot outwards as she stooped from her chair to pick up a rolling spool, a rug slipping under her foot. Apparently an outward and backward twist of the foot is usual, and the fracture takes place while weight is borne on the ball of the foot. Reduction is simple if the lesion is understood. All that is necessary is forward traction with the muscles relaxed in moderate plantar flexion. Having thus brought about the reduction in maximum dorsal flexion it must be held in plaster. If the lesion is not understood the results are bad unless spontaneous reduction occurs. If reduction, spontaneous or operative, is accomplished

the results are excellent and not inferior to those of Pott's fracture. The after-treatment is the same as in this fracture, except that early movement is necessary, but no weight should be borne on the foot for at least seven or eight weeks. The important thing is to know of and look out for this not uncommon and neglected lesion.

NON-PANEL PRACTITIONERS AND INSURANCE ACT CERTIFICATES.

THE questions raised in letters to THE LANCET of Jan. 23rd with regard to certificates of illness given by medical men not upon the panel, and not attending patients who have made their own arrangements for medical benefit, are dealt with in Circular A.S. 161, issued by the Insurance Commissioners, the gist of which is that in the cases referred to Form Med. 40 is not applicable, and it should not be used or asked for. The Commissioners, however, "desire to point out in the clearest terms that insured persons do not disqualify themselves from receiving sickness benefit by obtaining their certificates from doctors attending them in a private capacity." The following passage may be quoted:—

Though a society must distinguish these certificates, it must give them due consideration. A society is not entitled to refuse to receive and consider, in connexion with a claim to benefit, certificates not given under the Medical Certification Rules. On the contrary, a society is bound to take into due consideration any medical certificate put forward in support of a claim. This obviously does not mean that benefit must be paid on every certificate. The society has a responsibility which it is bound to discharge, and every certificate must be considered on its merits. Even where a certificate is on the official form and signed by a panel doctor in the ordinary way, the society should, of course, not pay without consideration. It should consider the certificate and decide whether it affords sufficient evidence for payment or whether further information is desirable, arranging special sick visiting or referring the case to a medical referee as may be required. And where the certificate is not on Form Med. 40 (and is therefore the certificate of a doctor who has attended the member in a private capacity), inquiries must often be needed which the understandings embodied in the Medical Certification Rules render unnecessary in cases certified under those rules.

The attitude of the Commissioners would appear to be one of toleration rather than encouragement of insured persons who show their independence by employing their own medical attendants, and who thus increase the funds available for insurance without deriving any "medical benefit" from them. It is to be regretted that means should not have been devised whereby all medical men certifying should, so to speak, meet on equal terms, writing their certificates upon forms that would make no distinction between the panel and the non-panel practitioner, and subject alike to penalties in respect of any certificate improperly given.

A CASE OF TRICHOCEPHALUS DISPAR.

THE presence of this parasite in the body is difficult to detect; the worm itself, too, is very hard to eradicate. Most characteristic of infection with this small whip-like worm, which buries its more slender extremity deeply into the intestinal mucosa, is the presence in the faeces of the ova which it passes. These are oval with a dark crenated "shell," and have a rounded knob at each end. They are passed in large numbers; they must, however, be carefully sought for, and it is

wise to wash the faeces through muslin. A case of this condition is described by Dr. Henry C. Drury in the *Dublin Journal of Medical Sciences* for March, 1915. The boy was aged 12, and his appearance suggested Hodgkin's disease because of the great enlargement of the glands in the neck and anaemia. He looked wretchedly ill. He had, however, a voracious appetite, though very constipated. Often there was abdominal pain. The blood examination showed a positive Wassermann reaction; there were also, and this was significant, 10 per cent. of eosinophiles in the blood count. This suggested "intestinal worms," and after a dose of santonin an ascaris lumbricoides was voided. Careful microscopical examination of the faeces showed the ova of trichocephalus dispar as well. After many drugs had been tried for this parasite and proved of no avail the operation of appendicostomy was performed. Through this route the colon was irrigated with thymol emulsion and also infusion of quassia, but no result was gained until, finally, a soap-and-water enema, two pints in quantity, resulted in the passage of a copious stool in which were found about a dozen of the parasites. Following this improvement and recovery were uninterrupted. After irrigation of the colon with infusion of quassia at intervals for a few days the wound was closed. Treatment with salvarsan cured the glandular condition. Reference to the literature shows examples of two other cases in which the parasites were found at operation to be in the appendix itself. Though in the present case this was not so, the symptoms at times very much simulated appendicitis.

THE RESULTS OF ANTIMALARIAL PROPHYLAXIS IN ITALY.

FOR the last two years, in face of a slight increase in the mortality from malaria, a certain amount of pessimism has been rife in Italy asserting that the hygienic measures hitherto adopted against that disease have reached their limit, and uttering a warning note that radical results are not possible without a profound transformation of the mosquito-ridden soil. Some observers think that the malarial parasite exists not only in malaria-infected man but also in some other animal, so that the infection of the transmitting mosquito arises not only from the gametiferous man but also from these other animals which harbour the virus. In a recent issue of *Il Morgagni* Dr. E. Bertarelli, professor of hygiene in the University of Parma, draws attention to the fact that the mortality in 1912 again reached a lower figure, the lowest hitherto observed since the mortality returns have been published. In ten years these figures had declined from more than 15,000 deaths to 3000 with absolute regularity, which is in itself proof of the efficacy of the measures adopted. The figures also show that the diminution of mortality again recorded for 1912-13 coincides with an increase in the consumption of quinine provided by the State, while there was also during the same period an increase in the amount of quinine sold privately in the country. A connexion between these facts may logically be assumed, and it is difficult to explain in any other way the reappearance of a decreasing mortality. Professor Bertarelli argues that if gametiferous human beings are the only source of infection for the mosquitoes it would follow that if these sources

are eradicated malaria would cease by automatic necessity. With more assiduous administration of quinine fewer gametiferous beings must be formed and the old stock must be fatally exhausted in a certain number of years by the necessary reduction which death causes. These considerations, taken in conjunction with the reappearance of the diminishing mortality, suggest that apart from human beings no other sources of malaria exist. The author does not deny that the use of mechanical means of defence and the destruction of the mosquitoes have been attended with conspicuous success, but he points out the difficulties inseparable from completely satisfactory achievement—for example, the destruction of hibernating mosquitoes, chiefly females, which are found in a condition of immobility in crevices and on walls. He is, however, strongly of opinion that the free consumption of quinine in malarious districts is the weapon which has given the most certain and rapid results.

THE library and offices of the Royal Society of Medicine will be closed for the Easter holidays from Thursday next, April 1st, to Tuesday, April 6th, both days inclusive.

ASYLUM REPORTS.

Suffolk District Asylum (Annual Report for the Year 1913).

—The total number of cases under treatment during the year was 1107, the average daily number resident being 917. The total number of admissions was 209 and the discharges amounted to 101. The recovery rate calculated on the net admissions was 15·8 per cent. There were 114 deaths, representing 12·4 per cent. on the average number resident. Of the total deaths 18·4 per cent. were due to senile decay, 19 per cent. to some form of tuberculous disease, and 10·5 per cent. to general paralysis of the insane. Dr. J. R. Whitwell, the medical superintendent, in making some general remarks, refers to the fact that it has been decided by the present lunacy law that if a man is well-to-do he can go to an institution for the treatment of mental disease and become a voluntary boarder, but that if he is a poor man he must go on from bad to worse, and even to attempted suicide (or whatever ultimate tendency his case has), before he can be brought under proper treatment. It is quite clear to all thinking persons dealing with mental disease that some greater latitude must sooner or later be given by the law, especially in the case of public institutions, if such institutions are to give their best service to, and perform their true function in, the community, and some greater degree of confidence must be placed in and some discretionary power given to the medical staff of what really is and should be called the "mental hospital" of the county than is either given or implied by the present Lunacy Act.

West Riding Pauper Lunatic Asylum, Wakefield (Annual Report for the Year 1913).—The total number of patients under treatment was 2500, the average daily number resident being 2068. The admissions amounted to 462 and the discharges to 155, of which 119 were recoveries, making a percentage of 25·76 on the total admissions. There were 241 deaths, making a rate of 11·65 per cent., estimated on the average number resident. Post-mortem examinations were performed in 85 per cent. of the deaths. During the year out-of-door treatment of the patients has been continued with satisfactory results. During the greater part of the year the whole of the recently admitted sick and infirm patients are kept in bed out of doors in the open air from morning until night, and meals are provided out of doors for the whole of the patients in the institution. The general health of the institution has been satisfactory, but 100 cases of dysentery have occurred during the year, of which 20 died. This epidemic of dysentery made the routine work of the pathological department very heavy. Numerous Wassermann reactions have been

performed and all the newly bought cattle tested with tuberculin. Dr. J. S. Bolton, the medical superintendent, draws attention to the importance of the educational work of the asylum, where the whole of the training for the diploma in psychological medicine of the University of Leeds is carried out. Dr. Bolton has been engaged throughout the year in completing a work on cerebral function, and his assistants, Dr. H. Devine, Dr. Alice Babington, and Dr. W. Robinson, and Mr. Harold S. Gettings, the pathologist, were all engaged in scientific research. — *Stanley Hall.*—Twelve new cases have been admitted during the year, and of these 6 attend school. During several months of the year the whole of the boys have lived outside, and the lessons have been conducted in the open air. The out-patient department continues in a flourishing condition.

The Retreat, York (Annual Report for the Year 1913).

—The total number of cases under treatment during the year was 259, of which 26 were voluntary boarders. The average daily number resident was 181·37 certified patients and 5·12 voluntary boarders. There were admitted 52 certified cases, and of these 48 were direct admissions. In no less than 14 of the new cases no cause whatever for the insanity could be assigned, in spite of the care taken in studying their history. The discharges numbered 37, of which 15 were recoveries. There were 8 deaths. Dr. Bedford Pierce, the medical superintendent, refers to the treatment of incipient insanity, and points out that as things are at present little or nothing can be done for persons threatened with a mental breakdown; the general hospitals have no beds for such and the public asylums cannot admit them unless certified as insane. The county and borough asylums in England and the district and parochial asylums of Scotland are not permitted to receive voluntary boarders. Expert treatment is therefore unattainable by the poor until the illness has become so pronounced that the patient can be certified as insane. Those persons who are on the verge of a breakdown, and who can afford to pay, can apply for admission as voluntary boarders to hospitals for the insane and licensed houses; but it commonly happens that the patients most needing treatment are not able to make up their minds to apply or decline to entertain the idea. Even when persuaded to come under care voluntarily many do not stay long enough to derive any benefit. It therefore seems desirable that besides ordinary certified patients and voluntary boarders there should be a legally recognised class which for the present purpose we may call "notified" patients. Persons so received would be detained for a strictly limited period, say three months, with a power to extend to six months in all, provided the facts of the case were fully notified to the Board of Control, and such medical statements supplied as the Board might require. It is assumed that notified patients would be visited periodically by members of the Board of Control, that no restrictions would be placed upon their correspondence, and that in other ways ample safeguards would be provided against abuse. But in addition to this it is much to be desired that early and undeveloped cases should be received temporarily into any institution for the insane approved by the Board of Control without the necessity for formal certification.

Waterford District Lunatic Asylum (Annual Report for the Year 1913).

—The number resident in the asylum on Dec. 31st, 1913, was 642, which was 17 more than at the beginning of the year. The average daily number resident in the asylum was 632 and the total number of admissions was 65, which is the smallest number for the past 30 years and well below the average for the past 10 years. The principal assigned causes of insanity in those admitted were as follows: Hereditary predisposition, 22 cases; mental stress or worry, 19; alcoholic excess, 11; mental deficiency, 6. The number discharged was 26, with a recovery rate calculated on the number admitted of 32·3 per cent., which is the lowest rate since 1908. There were 22 deaths, making a proportion of 3·5 per cent. on the average daily number resident. This is 3·5 below the average death-rate of the other Irish asylums. Tuberculous disease accounted for 18·1 per cent. of the total number. If the foregoing figures are closely examined it will be seen that although there has been an increase of 17 patients during the past year this is due almost entirely to the accumulation of patients. There has been a marked diminution in the number admitted, but at the same time the number discharged and died have declined.

The Coppice Mental Hospital for the County and City of Nottingham (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 114, the average daily number resident being 89. The number of cases admitted was 24, and in 29 per cent. of these a definite neurotic history was ascertained. There were 18 discharges, with 10 recoveries, giving the good percentage of 43.47 on the admissions. There were only 3 deaths, making the low proportion of 3.36 per cent. on the average number resident. One patient was admitted as a voluntary boarder. Dr. D. Hunter, the medical superintendent, remarks that it is to be regretted that more patients do not take advantage of this method of obtaining treatment when a mental breakdown is felt to be impending. At this early stage a course of treatment would in many cases relieve or prevent the attack of insanity, and the patient would be spared the stigma of certificates. A much-needed addition to the curative resources of the hospital was made in the shape of a shelter for the out-of-door treatment of acute cases.

Glamorgan County Lunatic Asylum, Bridgend (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 2106, the average daily number resident being 1784.9. There has been overcrowding to the extent of 123 males and 13 females as regards dormitory space, and 194 males and 103 females as regards day-room space. The total number of admissions was 353, of which 339 were direct. The most obtrusive feature in the etiological tables is the fact that cases in which alcohol is ascribed as principal or contributory cause are 32 less than last year, the percentage being 12.4, as compared with 21.0. The discharges numbered 132, of which 91 were recoveries. The recovery rate on the total admissions is 4 per cent. lower than last year. The exceptionally low death-rate of 8.1 per cent. on the average daily number on the register has not been recorded since the year 1896. The disease responsible for the largest number of deaths is general paralysis of the insane, the proportion being 23.4 per cent. Deaths due to tuberculous diseases are less numerous than last year, and are 14.5 per cent.

Down District Lunatic Asylum (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 900, the average daily number resident being 770. The total number of admissions was 139. With regard to the assigned causes and associated factors, it is interesting to note that passing events influence very largely the manner in which current insanity manifests itself. During the past year contemporary insanity has been tinged by occurrences more or less ephemeral which have taken place. In cases of delusions, the "voices" are now definite commands of opposing factions of political and sectarian strife, the "vague fears" are the acute terrors of "civil war," the "unknown enemies" are "Orangemen" or "Hibernians," as the case may be. In some cases undoubtedly this strain was the exciting cause of the breakdown; in others it unquestionably shaped the form of the attack which would have occurred in any event. At all periods of exceptional popular emotional waves the lunatics of the period reflect in their delusions the prevailing ideas. The discharges numbered 73, with a recovery rate on the admissions of 44.6 per cent. The deaths amounted to 52, making a rate of 6.8 per cent. on the average number resident.

City of Cardiff Mental Hospital (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 916, the average daily number resident being 710. The direct admissions amounted to 170, and there were 76 transfers from other asylums. A history of heredity of some kind was elicited in 47 per cent. of the direct admissions. The discharges numbered 88, with a recovery rate calculated on the direct admissions of 35.88 per cent. There were 97 deaths, and necropsies were held in 91 cases. Tuberculosis was directly responsible for deaths in 17.52 per cent., and tubercle was found in 4 others. General paralysis was the cause of death in 18.55 per cent. of the cases. Dr. E. Goodall and Dr. H. A. Schölberg have carried out research work in connexion with the Wassermann reaction, the results of which were communicated at the last International Congress of Medicine in London.¹ They have also investigated the question of the production of specific antiserum in rabbits by injecting them with serum

from patients suffering from dementia paralytica and dementia præcox. A very large number of rabbits were injected, but only in four or five was a precipitin produced which was capable of causing abundant precipitate in the corresponding human serum in a dilution of 1:1000. Their experiments showed that the antiserum produced by injection of a rabbit with serum from a case of a given kind of insanity is not specific as far as precipitin formation is concerned. The method cannot therefore be used for diagnosis. Dr. Goodall and Dr. Schölberg are also engaged in examining the brain cortex of general paralytics and the blood of these and of cases of the disease known as dementia præcox for the possible presence of organisms growing anaerobically. Dr. Goodall has been also testing the treatment of cases of acute and recent insanity with leucocytic extract. He has found that large doses of thyroid (40-60 grains a day) have given satisfactory results in certain cases of an "anergic" type, and have sometimes reduced the number of fits in cases of epilepsy. He considers that the whole subject of metabolism in the psychoses is in urgent need of examination. The dietetic treatment of epilepsy has also been investigated. Dr. Stanford, the research chemist, has been studying the cerebro-spinal fluid of the insane from a quantitative point of view. Mr. Barton White has continued his investigations of the bacteriology of intestinal contents, and also a bacteriological examination of the urine in general paralysis. Dr. D. J. Jackson has made a large number of qualitative leucocytal counts in certain typical cases of acute insanity.

Staffordshire County Mental Hospitals at Stafford, Burslem, and Cheddleton (Annual Report for the Year 1913).—The total number of cases under treatment during the year was 1117, the average daily number resident being 888. The total number of admissions was 248, and the principal causes assigned for the mental trouble were as follows: Heredity, 53; alcohol, 25; epilepsy, 21; mental stress, 18; senility, 14; puerperal state, 5; climacteric, 4; and congenital mental deficiency, 3. There were 113 discharges, with a recovery rate of 23.7 on the admissions. There were 106 deaths, giving a proportion of 11.93 per cent. on the average daily number resident. Phthisis was responsible for 28 of the deaths. Necropsies were only made in 56 instances. The question of providing verandahs for the better treatment of tuberculous cases has been under the consideration of the committee for some time.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

The undermentioned have been granted temporary commissions as Surgeon in His Majesty's Fleet:—Charles Williams Lewis and John Francis Pace.

The following appointments have been notified:—Surgeons: H. W. Nicholls to the *Faulknor*; and F. H. Stephens to the *Pembroke*, additional. Temporary Surgeons: J. F. McQueen to the *Victory*, additional, for Royal Naval Division Depot at Crystal Palace; D. Sutherland to the *Vernon*; M. B. Hay, D. R. Bedell-Sivright, N. P. Price, J. Bostock, F. H. Rees, G. L. Ritchie, E. M. Lauderdale, and L. S. Fry, all to the *Victory*, additional, for Royal Naval Division.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Robert Joseph Willan has been specially promoted to the rank of Staff-Surgeon for distinguished service (dated March 5th).

The undermentioned Surgeons have been promoted to the rank of Staff-Surgeon: Reginald John Edward Hanson (dated Dec. 23rd, 1911). Edward John Steegman (dated Feb. 13th, 1912). Harry Reah (dated May 16th, 1913). William Edmund Harker (dated August 3rd, 1913).

Staff Surgeon Francis John Hannan has been promoted to the rank of Honorary Staff-Surgeon (dated March 17th).

ARMY MEDICAL SERVICE.

Lieutenant-Colonel Albert L. F. Bate, from Royal Army Medical Corps, to be Colonel (dated March 1st).

ROYAL ARMY MEDICAL CORPS.

Temporary Captain Percy Sargent is granted temporarily the honorary rank of Lieutenant-Colonel (dated Dec. 13th, 1914).

Temporary Captain Gordon M. Holmes is granted temporarily the honorary rank of Major (dated Dec. 13th, 1914).

The undermentioned Temporary Lieutenants to be Temporary Captains:—Isaac Jones (dated March 20th); William Parry Morgan and Charles W. G. Bryan (dated March 21st); and Fergus Armstrong (dated March 23rd).

¹ THE LANCET, Dec. 26th, 1914, p. 1451, also Dec. 5th (p. 1287), 12th (p. 1343), and 19th (p. 1397).

INDIAN MEDICAL SERVICE.

The King has approved the promotion of the following officers:—Captains to be Majors: Charles Gibbons Seymour, Thomas Corrie Rutherford, Ernest Charles Taylor, and Alfred Whitmore (dated Jan. 31st).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant William K. Campbell is confirmed in his rank.

TERRITORIAL FORCE.

Army Medical Services.

Lieutenant-Colonel Charles Averill, from Sanitary Service, to be Deputy Assistant Director of Medical Services, Welsh Division (dated Feb. 17th). Captain Charles S. Wink, from Attached to Units other than Medical Units, to be Deputy Assistant Director of Medical Services, East Anglian (Reserve) Division (dated Feb. 14th).

Royal Army Medical Corps.

South-Eastern Mounted Brigade Field Ambulance: Major (Honorary Lieutenant in the Army) Lewis Harcourt Coles, Reserve of Officers, Retired List, Territorial Force, to be Transport Officer, with the honorary rank of Captain (dated March 18th).

Yorkshire Mounted Brigade Field Ambulance: Surgeon-Captain Robert A. Draper, from East Riding of Yorkshire Yeomanry, to be Major (temporary) (dated March 14th).

3rd East Lancashire Field Ambulance: Lieutenant Charles Bertram Marshall to be Captain (temporary) (dated Feb. 27th).

3rd North Midland Field Ambulance: Lieutenant-Colonel Lewis Walter Pocket, Retired List, Territorial Force, to be Lieutenant-Colonel (temporary) (dated Feb. 22nd).

1st Northern General Hospital: Major Frederick C. Pybus to be seconded (dated March 12th).

Welsh Border Mounted Brigade Field Ambulance: Frank Leslie Newton to be Lieutenant.

1st Eastern General Hospital: Paul Norman Blake Odgers to be Captain, whose services will be available on mobilisation.

Northumbrian Casualty Clearing Station: Charles Frederick Morris Saint to be Lieutenant.

Attached to Units other than Medical Units.—To be Majors: Captain (Honorary Lieutenant in Army) Michael J. Mahoney and Captain Peter M. Dewar. Captain John Orton, from the Territorial Force Reserve, to be Captain. Donald Peter MacLaren Farquharson (late Lieutenant 5th Volunteer Battalion, Argyll and Sutherland Highlanders), to be Captain (temporary). To be Lieutenants: Thomas Willoughby Cole, Ismay Donald Stubbs, and Lieutenant Duncan F. Macrae, from London Mounted Brigade Field Ambulance.

DEATHS IN THE SERVICES.

Deputy Inspector-General Charles Alexander Lees, R.N., recently, in his 81st year. He served in the Baltic operations in 1855 (medal) and in the China war, 1857-59, being in charge of the garrison of Macao Fort, Canton River (China medal).

PROMOTION IN THE ROYAL ARMY MEDICAL CORPS.

The Under Secretary of State for War has sent the following reply in answer to a question by Sir Clement Kinloch-Cooke, M.P.: "In reply to your letter, in which you raised the question of the promotion of junior officers in the Royal Army Medical Corps, I am glad to be able to inform you that it has now been arranged that all the lieutenants in the Royal Army Medical Corps should be promoted captains."

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The December issue of this journal, just published, closes the twenty-third volume. The first article is a continuation of the joint communication on the Trypanosome Causing Disease in Man in Nyasaland, by Sir David Bruce, Major A. E. Hamerton, Captain D. P. Watson, and Lady Bruce, quoted from the Proceedings of the Royal Society. In Notes on the Bacteriology of Wounds, by Lieutenant T. H. Just, Demonstrator of Pathology at St. Bartholomew's Hospital, giving a short series of cases examined in No. 12 General Hospital at Rouen, the conclusion is drawn that the infection of wounds is in the main one of low virulence, the damage of the tissues being chiefly effected by the concussion of the shell or bullet, as the case may be, and not by the infecting micro-organism. Major C. F. Wanhill has a useful article on Incineration and Incinerators as Applied to Cantonments in India; Captain G. K. Aubrey describes a short form of stretcher for use in trenches¹; and there is an interesting communication from Dr. Moraes Manchego, Médecin de l'Armée portugaise, on Statistiques Sanitaires; Leur Importance pour l'Etude des Conditions Physiques et Morales des Troupes. Colonel R. H. Firth takes for the subject of his note-book talks Phantom Matter, and explains the present position or meaning of the recently acquired facts concerning the radio-elements. He has endeavoured to use simple language, but, as he points out, it may be stiff reading for some.

¹ THE LANCET, Dec. 26th 1914, p. 1488.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last census, 8582 births and 6714 deaths were registered during the week ended Saturday, March 20th. The annual rate of mortality in these towns, which had declined from 20.7 to 19.7 per 1000 in the four preceding weeks, further fell in the week under notice to 19.3 per 1000 of their aggregate population, estimated at 18,134,239 persons at the middle of 1914. During the first eleven weeks of the current quarter the mean annual death-rate in these towns averaged 19.5, against a corresponding rate of 20.3 per 1000 in London. The annual death-rate last week ranged from 8.2 in Gloucester, 9.5 in Lincoln, 9.7 in Barnsley, 10.0 in Dudley, and 10.3 in Ilford and in Gillingham, to 25.3 in South Shields, 26.4 in Preston, 26.8 in Wigan, 27.6 in Merthyr Tydfil, and 28.0 in Darlington.

The 6714 deaths from all causes were 149 fewer than the number in the previous week, and included 739 which were referred to the principal epidemic diseases, against numbers increasing from 511 to 657 in the five preceding weeks. Of these 739 deaths, 421 resulted from measles, 151 from whooping-cough, 63 from infantile diarrhoeal diseases, 61 from diphtheria, 29 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2.1, or 0.2 per 1000 higher than that recorded in the previous week. The deaths attributed to measles, which had increased from 207 to 373 in the five preceding weeks, further rose to 421 last week, and caused the highest annual death-rates of 3.5 in Stockton-on-Tees, 3.8 in Wolverhampton, 4.1 in St. Helens, 5.1 in Enfield, 5.4 in Cambridge, 5.7 in West Hartlepool, 6.1 in Smethwick, 6.8 in West Bromwich, and 8.8 in Darlington. The deaths referred to whooping-cough, which had been 111, 110, and 120 in the three preceding weeks, further rose to 151 last week, and included 41 in London, 9 in Liverpool, 8 in Bristol, 5 in Wigan and in Leeds, and 4 each in Portsmouth, Southampton, Hull, and Merthyr Tydfil. The fatal cases of diarrhoea and enteritis (among infants under 2 years), which had been 75, 71, and 77 in the three preceding weeks, fell to 63 last week, of which 15 were registered in London, 5 in Leeds, and 3 each in Birmingham and Sheffield. The deaths from diphtheria, which had declined from 80 to 51 in the four preceding weeks, rose to 61 last week, and included 17 in London, 6 in Birmingham, and 3 each in West Ham, Stoke-on-Trent, Liverpool, and Sheffield. The deaths referred to scarlet fever, which had been 38, 32, and 21 in the three preceding weeks, rose to 29 last week; 6 deaths belonged to London, 3 each to Liverpool and Merthyr Tydfil, and 2 to Darlington. The fatal cases of enteric fever, which had been 13, 10, and 15 in the three preceding weeks, were 14 last week, and included 2 each in London, Liverpool, and Manchester.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 5036 to 2850 in the 16 preceding weeks, had further fallen to 2730 on Saturday last; 289 new cases were admitted during the week, against 302, 298, and 275 in the three preceding weeks. These hospitals also contained on Saturday last 1505 cases of diphtheria, 283 of measles, 57 of enteric fever, 19 of whooping-cough, and 3 of small-pox. The 1826 deaths from all causes in London were 32 in excess of the number in the previous week, and corresponded to an annual death-rate of 21.1 per 1000. The deaths referred to diseases of the respiratory system, which had been 476, 468, and 442 in the three preceding weeks, rose to 478 last week, and were 228 above the number recorded in the corresponding week of last year. The deaths from influenza numbered 67, against 83, 48, and 54 in the three preceding weeks.

Of the 6714 deaths from all causes in the 96 towns 199 resulted from different forms of violence and 489 were the subject of coroners' inquests, while 1795 occurred in public institutions. The causes of 48, or 0.7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 67 other smaller towns. Of the 48 uncertified causes of death, 10 were registered in Birmingham, 4 each in Stoke-on-Trent, Liverpool, and St. Helens, 3 in Bootle, and 2 each in Coventry, Warrington, Hull, and South Shields.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,500 persons at the middle of this year, 1149 births and 936 deaths were registered during the week ended Saturday, March 20th. The annual rate of mortality in

these towns, which had been 21.2, 23.2, and 20.9 per 1000 in the three preceding weeks, further fell to 20.8 per 1000 in the week under notice. During the first eleven weeks of the current quarter the mean annual death-rate in these towns averaged 22.5, against 19.5 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 9.5 in Coatbridge, 13.7 in Falkirk, and 14.9 in Paisley, to 22.6 in Kilmarnock, 23.0 in Hamilton, and 30.0 in Dundee.

The 936 deaths from all causes were 4 fewer than the number in the previous week, and included 139 which were referred to the principal epidemic diseases, against 145 and 131 in the two preceding weeks. Of these 139 deaths, 88 resulted from whooping-cough, 26 from measles, 11 from scarlet fever, 7 from diphtheria, 6 from infantile diarrhoeal diseases, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 3.1, against 2.1 per 1000 in the large English towns. The deaths attributed to whooping-cough, which had been 89, 91, and 87 in the three preceding weeks, were 88 last week, and included 44 in Glasgow, 26 in Dundee, 7 in Edinburgh, and 3 in Greenock. The deaths referred to measles, which had been 8, 21, and 15 in the three preceding weeks, rose to 26 last week, of which 15 were recorded in Glasgow and 9 in Dundee. The fatal cases of scarlet fever, which had been 11, 9, and 13 in the three preceding weeks, fell to 11 last week, and comprised 5 in Glasgow, 3 in Aberdeen, 2 in Edinburgh, and 1 in Kirkcaldy. The deaths attributed to diphtheria, which had been 11, 15, and 10 in the three preceding weeks, further fell to 7 last week, and included 4 in Glasgow and 2 in Aberdeen. The 6 deaths of infants referred to diarrhoea and enteritis were 1 below the average in the three preceding weeks, but showed no excess in any individual town. The fatal case of enteric fever occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 235, 264, and 215 in the three preceding weeks, further fell to 188 in the week under notice, but were 71 above the number recorded in the corresponding week of last year. The deaths attributed to violence numbered 36, against 34 and 23 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year, 622 births and 558 deaths were registered during the week ended Saturday, March 20th. The annual rate of mortality in these towns, which had been 27.6, 27.4, and 25.9 per 1000 in the three preceding weeks, further fell to 24.0 per 1000 in the week under notice. During the first 11 weeks of the current quarter the mean annual death-rate in these towns averaged 25.8 against corresponding rates of 19.5 and 22.5 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 23.8 in Dublin (against 21.1 in London and in Glasgow), 25.0 in Belfast, 25.8 in Cork, 21.5 in Londonderry, 31.1 in Limerick, and 32.3 in Waterford, while in the 21 smaller towns the mean rate was 20.0 per 1000.

The 558 deaths from all causes were 44 fewer than the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 36 and 37 in the two preceding weeks. Of these 36 deaths, 14 resulted from whooping-cough, 8 each from measles and scarlet fever, 4 from infantile diarrhoeal diseases, and 2 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 1.5, against corresponding rates of 2.1 and 3.1 per 1000 in the English and Scotch towns respectively. The deaths attributed to whooping-cough, which had been 18, 10, and 12 in the three preceding weeks, rose to 14 last week, and comprised 13 in Dublin and 1 in Belfast. The deaths from measles, which had been 8 in each of the three preceding weeks, were again 8 last week, of which 7 occurred in Belfast and 1 in Dublin. The 8 fatal cases of scarlet fever were double the average in the earlier weeks of the quarter, and included 6 in Waterford. The deaths of infants (under 2 years) attributed to diarrhoea and enteritis, which had been 5, 11, and 14 in the three preceding weeks, fell to 4 last week, and comprised 2 in Dublin and 2 in Belfast. The 2 fatal cases of diphtheria were recorded in Dublin and Belfast respectively. In addition to the above deaths a fatal case of typhus was registered in Kilkenny.

The deaths referred to diseases of the respiratory system, which had been 187, 188, and 167 in the three preceding weeks, further fell to 155 in the week under notice. Of the 558 deaths from all causes, 160, or 29 per cent., occurred in public institutions, and 18 resulted from different forms of violence. The causes of 24, or 4.3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the English towns the proportion of uncertified causes did not exceed 0.7 per cent.

VITAL STATISTICS OF LONDON DURING 1914.

In the accompanying table statistics of sickness and mortality in the City of London and in each of the metropolitan boroughs are summarised for the year 1914. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to a rate of 9.0 per 1000 of the population, estimated at 4,516,612 persons in the middle of the year; in the three preceding years the rates had been 4.5, 5.1, and 6.7 per 1000 respectively. Among the various boroughs the rates last year ranged from 5.9 in Holborn, 6.4 in Chelsea, 6.8 in Hampstead, and 6.9 in St. Marylebone and in Wandsworth, to 9.8 in Fulham, 10.4 in Hammersmith, 10.8 in Bethnal Green, 11.6 in Southwark, 12.5 in Deptford, and 12.7 in Stepney. The prevalence of scarlet fever showed a further marked increase last year, 25,015 cases being notified during the year, against 10,489, 11,312, and 17,552 in the three preceding years. Among the metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Hammersmith, Fulham, Stepney, Southwark, and Deptford. The Metropolitan Asylums Hospitals contained 4431 scarlet fever patients at the end of last year, against 1878, 2088, and 3810 at the end of the three preceding years; 23,154 new cases were admitted during the year, against 9631, 10,488, and 16,255 in the three preceding years. Diphtheria also was more prevalent than it had been in other recent years; 9118 cases were notified, against 7101 and 7654 in 1912 and 1913 respectively. This disease was proportionately most prevalent last year in Hampstead, Bethnal Green, Stepney, Greenwich, and Woolwich. The number of diphtheria patients admitted into the Metropolitan Asylums Hospitals during the year was 8444, against 6184 and 6814 in the two preceding years; the number of patients remaining under treatment at the end of the year was 1663, against 959 and 1099 at the end of the two preceding years. The prevalence of enteric fever showed a slight increase over that in preceding years, 779 cases being notified against 704 and 758 in the two preceding years. Among the several boroughs this disease was proportionately most prevalent in Chelsea, the City of Westminster, St. Marylebone, Holborn, and Lewisham. The number of enteric fever patients admitted into the Metropolitan Asylums Hospitals during the year was 470, against 381 and 415 in the two preceding years; 68 cases remained under treatment at the end of the year, against 37 and 51 at the end of the two preceding years. The greatest proportional prevalence of erysipelas occurred in Finsbury, Shoreditch, Bethnal Green, Stepney, Southwark, and Deptford. The 393 cases of puerperal fever notified during the year included 33 in Fulham and in Stepney, 31 in Wandsworth, 29 in Southwark, 25 in Islington, 24 in Camberwell, and 23 in Poplar and in Lambeth. Of the 73 cases of cerebro-spinal meningitis 9 belonged to Poplar, 7 to Islington, 6 to Southwark, and 5 each to Bermondsey and Lambeth. The 93 cases of poliomyelitis included 27 in Stepney, 10 in Lambeth, 8 in Islington, 8 in Poplar, 5 in Hackney, and 5 in Camberwell.

The mortality figures in the table relate to the deaths of persons actually belonging to the several boroughs, and are obtained by distributing the deaths in institutions among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex and age constitution of the populations of the several boroughs. During last year the deaths of 64,994 persons belonging to London were registered, equal to a corrected death-rate of 14.4 per 1000; in the three preceding years the rates were 15.8, 14.3, and 14.2 per 1000 respectively. Among the several boroughs the lowest death-rates last year were 10.7 in Lewisham, 11.0 in Hampstead and in Wandsworth, 12.5 in Stoke Newington, and 12.9 in Paddington and in Chelsea; the highest rates were 17.3 in Stepney, 17.4 in Bermondsey, 17.9 in Southwark, 19.4 in Finsbury, and 19.6 in Shoreditch. The deaths from all causes included 6503 from the principal infectious diseases; of these, 1385 resulted from measles, 316 from scarlet fever, 706 from diphtheria, 918 from whooping-cough, 147 from enteric fever, and 3031 from diarrhoea and enteritis among children under 2 years of age. The death-rates from these diseases in the aggregate ranged from 0.5 in Hampstead and in the City of London, 0.6 in the City of Westminster and in Stoke Newington, and 0.7 in Kensington, in Chelsea, and in Lewisham, to 2.1 in Poplar and in Bermondsey, 2.2 in Southwark, 2.3 in Stepney, 2.6 in Bethnal Green, 2.7 in Finsbury, and 3.1 in Shoreditch. The 1385 fatal cases of measles were 665 below the corrected average number in the five preceding years; this disease was proportionately most fatal in Finsbury, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The 316 deaths from scarlet fever were 72 in excess of the corrected average number; the greatest proportional mortality from this disease was recorded in Kensington, Fulham, Stepney, Southwark, and Camberwell. The 706 fatal cases of diphtheria were 200 above the corrected average number; the highest death-rates

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING THE YEAR 1914.
(Specially compiled for THE LANCET.)

CITIES AND BOROUGHES.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping cough.	Enteric fever.	Diarrhoea and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON...	4,515,612	—	25,015	9118	1	779	18	393	4970	73	93	40,460	9.0	—	1385	316	706	918	147	3131	6503	1.4	64,994	14.4
West Districts.																								
Paddington	142,055	—	743	295	—	10	2	10	140	1	3	1204	8.5	—	4	8	20	25	3	79	139	1.0	1846	12.9
Kensington	170,817	—	962	200	—	11	2	6	165	2	—	1398	7.9	—	15	17	13	7	1	63	116	0.7	2242	13.1
Hammersmith	124,750	—	977	179	—	14	—	7	102	2	1	1232	10.4	—	41	5	16	21	5	67	155	1.3	1717	13.7
Fulham	158,849	—	1043	271	—	40	1	33	152	1	—	1541	9.8	—	31	21	22	42	9	126	251	1.6	2101	13.8
Chelsea	63,791	—	272	74	1	23	1	8	34	1	—	414	6.4	—	3	5	8	6	3	21	46	0.7	870	12.9
City of Westminster	152,346	—	844	186	—	49	2	10	111	1	1	1204	7.8	—	6	10	15	21	9	35	96	0.6	1936	13.2
North Districts.																								
St. Marylebone	112,892	—	434	235	—	37	—	9	67	1	—	783	6.9	—	2	9	18	20	6	59	114	1.0	1577	14.1
Hampstead	86,731	—	281	231	—	17	—	7	45	—	3	584	6.8	—	2	2	10	16	4	11	45	0.5	893	11.0
St. Pancras	212,497	—	1207	451	—	44	1	18	224	3	3	1951	9.1	—	56	18	30	51	4	121	280	1.3	3334	15.6
Islington	324,764	—	1851	661	—	75	—	25	335	7	8	2962	9.1	—	97	24	43	84	15	228	491	1.5	4923	14.8
Stoke Newington	50,454	—	264	98	—	4	—	3	49	—	—	418	8.3	—	1	3	4	6	—	16	30	0.6	661	12.5
Hackney	223,724	—	106	495	—	28	3	17	256	3	5	1653	7.4	—	106	9	39	53	8	127	342	1.5	3099	14.0
Central Districts.																								
Holborn	45,861	—	171	64	—	15	—	4	22	—	—	276	5.9	—	11	2	4	9	6	13	45	1.0	754	16.2
Finsbury	83,212	—	449	145	—	19	—	11	157	3	1	785	9.3	—	76	6	9	45	2	88	226	2.7	1652	19.4
City of London	17,129	—	85	31	—	5	—	—	10	—	—	131	7.4	—	1	1	2	3	1	1	9	0.5	239	14.0
East Districts.																								
Shoreditch	108,869	—	424	221	—	19	1	13	198	3	1	880	8.1	—	112	5	20	55	2	148	342	3.1	2075	19.6
Bethnal Green	127,662	—	654	376	—	18	—	9	305	2	7	1371	10.8	—	68	7	28	48	4	174	329	2.6	2034	16.6
Stepney	273,265	—	2089	885	—	47	—	33	403	4	27	3488	12.7	—	182	28	70	72	8	268	658	2.3	4539	17.3
Poplar	160,222	—	663	353	—	34	—	23	222	9	8	1312	8.2	—	66	10	34	31	6	195	342	2.1	2743	16.9
South Districts.																								
Southwark	186,941	—	1447	340	—	24	—	29	395	6	4	2175	11.6	—	95	22	37	59	2	207	422	2.2	3350	17.9
Bermondsey	124,213	—	581	216	—	8	—	5	123	5	1	939	7.6	—	81	8	18	14	3	140	264	2.1	2165	17.4
Lambeth	296,724	—	1754	560	—	50	3	23	237	5	10	2642	8.9	—	58	16	50	40	16	202	382	1.3	4319	14.3
Battersea	167,338	—	996	267	—	21	—	13	156	1	1	1455	8.7	—	50	11	17	26	3	122	229	1.4	2220	13.4
Wandsworth	338,998	—	1410	537	—	47	—	31	233	3	2	2268	6.9	—	26	13	41	56	5	148	289	0.9	3617	11.0
Camberwell	262,020	—	1541	458	—	29	1	24	270	4	5	2332	8.9	—	65	23	39	47	5	143	322	1.2	3569	13.6
Deptford	109,182	—	863	252	—	9	—	5	229	—	1	1359	12.5	—	51	9	25	9	3	91	188	1.7	1572	14.3
Greenwich	96,037	—	552	243	—	10	1	3	123	4	—	936	9.8	—	47	7	16	6	5	53	134	1.4	1412	14.5
Lewisham...	172,433	—	955	406	—	51	—	7	129	—	1	1549	9.2	—	7	8	24	19	6	55	119	0.7	1836	10.7
Woolwich...	122,836	—	693	387	—	15	—	7	101	1	—	1204	9.9	—	25	9	34	27	3	30	128	1.0	1679	14.1
Port of London	—	4	1	—	—	6	—	—	2	1	—	14	—	—	—	—	—	—	—	—	—	—	—	—

Including membranous group.

† The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales, being taken as the standard.

from this disease were recorded in Bethnal Green, Stepney, Poplar, Southwark, Deptford, and Woolwich. The 918 deaths from whooping-cough were 164 fewer than the corrected average number; this disease was proportionally most fatal in Fulham, Islington, Finsbury, Shoreditch, Bethnal Green, Stepney, and Southwark. The 147 fatal cases of enteric fever were slightly in excess of the corrected average number; the greatest proportional mortality from this disease occurred in Fulham, the City of Westminster, Holborn, and the City of London. Diarrhoea and enteritis among children under 2 years of age was proportionally most fatal in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last year from the principal infectious diseases, excluding diarrhoea, was 12·3 per cent. below the average.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ulster Hospital for Women and Children.

At the annual meeting of the friends of this institution held on March 18th it was reported that during the 12 months under review 4028 new cases had been treated in the different departments, and that 433 operations had been performed. Mr. S. T. Irwin has been appointed full surgeon in place of Mr. A. B. Mitchell resigned, and Dr. T. S. S. Holmes has been selected as gynaecological surgeon in room of Dr. Marion B. Andrews, resigned. Financially the total expenditure was £2034 2s. 2d., while the income amounted to £2004 14s. 6d., and with the balance carried forward from 1913 the hospital starts the year 1915 with a credit of £389 8s. 11d.

Ulster Medical Society.

At a meeting of the Ulster Medical Society held on March 18th Dr. T. S. Kirk read a paper on the Surgical Aspects of Hyperacidity. A discussion followed, which was made much more interesting and practical by the relation of the personal experience of two medical men who had themselves undergone surgical operation for gastric and duodenal ulcers.

The Drink Question.

The heads of the four largest religious bodies in Ireland (Roman Catholic, Protestant Episcopal, Presbyterian, and Methodist) have sent to the Prime Minister a letter expressing the strong feeling throughout the country that the example set by Russia and France and, in a smaller degree by Germany, in dealing with the drink traffic should be followed by Great Britain and Ireland. They urge the closing of public-houses and clubs on Sunday, the abolition of the *bona-fide* Travellers Act, the prohibition of the sale of drink after 1 P.M. on Saturday and 6 P.M. on other days, and the doing away with "wet" canteens in military camps.

Cerebro-spinal Meningitis.

From Dec. 8th, 1914, to March 20th, 1915, there have been received into Purdysburn Municipal Fever Hospital, Belfast, 22 cases of cerebro-spinal meningitis ("spotted fever"). Of these, 12 were civilians and 10 came from the following military camps—viz., 7 from Randalstown, 2 from Clondeboye, and 1 from Lurgan. Of these 22 cases, 5 have died—that is, a mortality of almost 23 per cent.

The late Dr. Timothy Crowley.

Dr. Timothy Crowley, who died suddenly on March 7th, was educated at Queen's College, Cork, where he was a medical scholar and prizeman and graduated M.D., M.Ch. in 1872. He was medical officer of the Clonmoyle Dispensary District and the

senior medical officer of the Macroom Union. With his professional brethren he was very popular. By his death a notorious murder case at Coachford, Cork, is recalled, for it was chiefly owing to the medical evidence of Dr. Crowley and Professor C. Y. Pearson that the murderer, a retired army surgeon, named Cross, was brought to justice for poisoning his wife.

March 22nd.

INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Hospitals for Wounded Indian Soldiers.

Lucknow and Allahabad are amongst the stations at which special hospital accommodation has been made for the wounded Indian soldiers from the front, the arrangements being under charge of Surgeon-General H. G. Hathaway, Deputy Director of Medical Services in the 8th (Lucknow) Division. At Lucknow an Indian Troops Hospital has been fitted up in cantonments for 207 cases, while part of King George's Civil Hospital, to accommodate 50 cases, has been allotted for wounded Indian troops. At Allahabad preparations have been made for the reception of 75 cases altogether in two different hospitals, one in the Indian infantry lines and the second in the Indian cavalry lines. In the fitting up of the hospitals assistance was given by the Lucknow and Allahabad Committees of the St. John Ambulance Association, who have provided many articles to add to the comfort of the sick soldiers. Already two batches of cases have been received at Lucknow. A few weeks ago 46 from France and the Persian Gulf arrived, while on Monday last there came 118 further cases, chiefly from France, and including five Indian officers; both batches are comfortably installed, the first at King George's Hospital and the second at the Indian Troops Hospital. European and Indian residents in Lucknow have vied with each other in lending their motor-cars for the purpose of transport from the station to the hospital, while for lying-down cases ambulance tongas were available. The 118 who came on Monday, March 8th, arrived at night, and hot milk was given to them at the station before they started on their journey to hospital. Most of them, as already mentioned, received their injuries in France and are suffering from rifle or machine-gun wounds. There are also a number of cases of frost-bite.

Arrival of Wounded Soldiers at Bombay.

The hospital ship *Sicilia* arrived in Bombay on Friday, March 12th, with several hundred wounded Indian soldiers who have been fighting in France and Belgium. All the men had been in hospital in England and many of them were convalescent. As the ship entered the dock these latter crowded on to the rails anxious to get the first glimpse of their native land. A few amongst them had crutches or sticks, and some had an arm in a sling, but the majority showed no signs of the strenuous times they had gone through, if we except the peculiar look which is to be seen in the eyes of all soldiers who have been at hand-grips with death on the battle-field. The diversity of costumes worn by the men was great, each man having been allowed apparently to dress as his fancy dictated. Some had on well-worn khaki uniforms, others wore the *dhotar* or *kamis*, others again were attired in a mixture of Indian and European garb, and there was one man whose costume consisted of a pair of

army boots, socks, underpants, and vest, with a knitted cap on his head to complete the effect. In headgear, too, there were many different styles, ranging from the khaki-coloured pugree to the slouch hat of the Gurkha, while two young Gurkhas were proudly wearing the regulation British Army field cap. The serious cases were removed by the local Ambulance Corps, consisting mainly of the Parsi Overseas Brigade, to the Lady Hardinge War Hospital, or the Marine Lines Hospital, while the convalescents went to up-country stations in the ambulance trains.

Sanitary Reforms in Bombay.

After an interval of eight months the Bombay Government have issued their resolution reviewing the recommendations contained in the Government of India resolution on Indian sanitary policy, which was issued so far back as May 23rd, 1914.¹ The wheels of the administrative machinery, no doubt, move very slowly, and it is rather late in the day to issue orders on Jan. 7th, 1915, that the Indian Government's resolution of May last "should be forwarded for information to the Sanitary Commissioner for the Government of Bombay; the Surgeon-General with the Government of Bombay," and so on. It is pointed out that the suggestion of the Government of India as to the desirability of health officers and sanitary inspectors being attached to all municipalities is being adopted in many places in this Presidency. The Government have sanctioned grants-in-aid towards the cost of the entertainment of these officers in accordance with the scheme laid down by the Government of India. The Sanitary Commissioner has also submitted proposals for the regrouping of municipalities, for the classification of health officers and sanitary inspectors, and for the improvement of their pay and prospects. These proposals are under the consideration of the Government. As to the suggested constitution of provincial sanitary boards composed of officials and non-officials, such a board has recently been appointed, or rather reconstituted, in this Presidency, and has been authorised to sanction projects costing up to Rs.20,000, and to make non-recurring grants up to Rs.10,000. The Government of India laid down that every facility should be provided for people to obtain protection against plague through inoculation. The Local Government, it would appear, have been employing 24 sub-assistant surgeons for inoculation work in the Presidency. Besides this, a grant of Rs.1000 is placed annually at the disposal of the Surgeon-General to meet expenditure in connexion with antiplague inoculation at the different hospitals. As regards special anti-tuberculosis measures, we are told that the question of the establishment of tuberculosis dispensaries and separate wards for tuberculous patients is under consideration of the Government. Special attention was invited by the Government of India to the importance of making sanitary surveys on broad lines, and it was suggested that systematic working plans should be drawn up with a view to mapping out the sanitary conditions of all important towns and localities in which sickness or mortality is abnormal. The Local Government have instituted a few such surveys, mostly malarial, in places like Karachi, Kharaghoda, Salsette, and in Kanara district. Apart from these surveys we are told that the Government have

under consideration proposals for the appointment of district health officers who will relieve and enable the Deputy Sanitary Commissioners to undertake systematic sanitary surveys of the urban areas in their charges. The question of having in every important municipality a small, well-built segregation hospital is also sympathetically viewed by the Government, as also the need of adopting organised measures for the diffusion of elementary knowledge of the more common infectious diseases. The question of the contamination of milk-supply is stated to be engaging the attention of Government.

Plague Prevention in Lahore.

The health officer of Lahore has put forward a scheme for cleansing the city with a view to the prevention of plague. He suggests that a scheme of house-to-house cleansing should be organised, and, to start with, five gangs of ten men each should be engaged to undertake the work of cleansing. They would remove rubbish, fumigate rooms, and expose to the sunshine all clothes and bedding. The sanction of the occupants would, of course, be necessary before any house was cleansed, and only men above the sweeper class should be employed.

The Pay of Civil Assistant Surgeons.

The sanction of the Government of India has been obtained to increase the pay of civil assistant surgeons appointed to be civil surgeons in Bengal. The present salary is Rs.350, rising to Rs.500. From Sept. 21st last the pay will be raised to Rs.600.

Town Planning in Madras.

Recently Professor Geddes and his sympathisers in England are not allowing the grass to grow under their feet because the *Emden* sent the Professor's preliminary collection of exhibits to the bottom of the sea. Professor Geddes tells us in an article published in the *Local Self-Government Gazette*, a newly started Madras journal, that soon after the unfortunate event an "emergency committee," including leading town-planners and architects, artists, collectors, and others interested, was spontaneously and independently formed in London and in Edinburgh, with correspondents throughout the United Kingdom, in America, and (as far as possible) upon the continent, to enable him to reorganise the exhibition; and in the interests of this committee funds are being appealed for. An exhibition, it is hoped, will be held in at least two of the three capitals of the presidencies, for even if it is upon a diminished scale it should be sufficient to afford useful illustrations of the main aspects of the movement, as it displays not only the geographical origins and conditions of cities, but also their historical development, from antiquity onwards, and the interaction of environmental and historical changes and other social factors, material and moral.

The St. John Ambulance and the French Red Cross.

The Consul-General of France in India has written conveying his grateful thanks to the Indian Council of the St. John Ambulance Association for the consignments of Red Cross gifts, valued at £240 sterling. The 12 cases containing the gifts will go by the next Messageries Maritimes steamer direct to France.

March 2nd.

SMALL-POX IN OLDHAM.—There are now 13 persons at Cinder Hill Hospital suffering from this disease.

¹ THE LANCET, July 13th, 1914, p. 187.

Correspondence.

"Audi alteram partem."

LOUIS DANIEL BEAUPERTHUY AND MOSQUITO-BORNE DISEASES.

To the Editor of THE LANCET.

SIR,—“A prophet is not without honour save in his own country.” The truth of this ancient dictum is generally recognised, but it would seem that it can no longer be considered applicable in the case of the unfortunate Dr. Beauperthuy. Sir Ronald Ross in THE LANCET of March 6th takes me to task for venturing to suggest that Beauperthuy's work has at least equal merit with that of King, and he calls to his aid Dr. Seidelin, who quotes chapter and verse to show that Beauperthuy has been over-rated, that he is now, indeed, a Daniel come to judgment. It is all very interesting if not very profitable, and I think there is still something to be said for the French West Indian who, at least in his own day, had such a reputation as a physician and investigator that I understand he was specially asked by the British Government to take charge of an important leper settlement in British Guiana. This, however, is perhaps somewhat beside the mark, for here we are only concerned with Beauperthuy and his mosquito theories. After all, I did not claim very much for him. I only suggested that as Sir Ronald Ross in his interesting lecture dealt with some of the earlier pioneers, he might have mentioned Beauperthuy in the same breath as King.

Let me say at once that, like Sir Ronald Ross, my information as regards Beauperthuy was derived mainly from the writings of Sir Rubert Boyce, who quotes him freely, and from those of Dr. Agramonte. At the same time I had something more to go upon. For one thing, I had Sir Ronald Ross's own statements in his “Prevention of Malaria”; for another, I had recently travelled in some of the countries in which Beauperthuy lived and worked. Everywhere I found Beauperthuy's name held in respect and reverence. In Venezuela and Colombia alike he is regarded as having been a very great and far-seeing physician who has not received the meed of praise which was his due. Mere local celebrity, however, is not sufficient to place a man upon a pedestal, or even in a niche of the temple of fame, and so I only suggested a comparatively humble corner for Beauperthuy, one he might, perhaps, be permitted to share with King though not with Finlay and those others who paved the way for the final discoveries as regards the transmission of malaria and yellow fever.

Let us see what Sir Ronald Ross himself says. In “The Prevention of Malaria” (p. 16), when speaking of Finlay's work, which I, for one, would be the last to decry, he remarks: “Like Beauperthuy, he rightly conjectured the species of mosquito which carries yellow fever.” Again, on the next page he mentions King's able paper and says of its author: “Like Beauperthuy, he held that the insects bring the poison from the marsh and inoculate it by their bites.”

With all that Sir Ronald Ross says about the difference between the scientific speculator and the careful research worker I am in agreement, but, after all, it appears to me that Beauperthuy and King were, to all intents and purposes, in the same category, albeit it would appear that King marshalled his theories in a more logical and careful fashion. At the same time, 5 of his 19 arguments were unsound and 3 others distinctly

doubtful, as Sir Ronald Ross is careful to point out in his criticism of them. This being so, and considering that Beauperthuy was an enthusiastic microscopist in days when a microscope was a rarity in the tropics, that he wrote 30 years before King, that it is probable he tried to supplement his hypotheses by some experimental work, and that he lived in regions where, at that time, it must have been very difficult to keep in touch with scientific progress and medical literature, I do not think I was far wrong in claiming that he might be ranked with King. Let those interested consult the quotations from his writings given by Boyce on pp. 24, 25, 98 *et seq.* of “Mosquito or Man,” judge for themselves.

I can follow the arguments advanced by Sir Ronald Ross, but I confess that some of Dr. Seidelin's present difficulties. In the first place, I should say that Beauperthuy's idea that most infectious diseases are spread by ascaridæ (elsewhere he speaks of “acariens”) or “insects” might well be accounted to him for righteousness, considering his day and generation and what we now know as regards plague, typhus, and many other communicable disorders. Again, Dr. Seidelin might take into account the difference between a starving and a gorged stegomyia. While I admit the former could rarely, if ever, be described as “silly” or “dull,” the latter is often in such a condition that it makes no attempt [to evade the avenging hand or flapper. It is at least possible that Beauperthuy was thinking of the gorged and sluggish insect.

Yet again, when discussing the views of Agramonte, Boyce, and Guiteras, Dr. Seidelin, on the whole, tends to support the last named. Now Guiteras, as Dr. Seidelin shows, takes Beauperthuy's “zancudo bobo” to be *Culex sollicitans*. Dr. Seidelin also thinks that Guiteras is correct in translating Beauperthuy's statement in such a way as to make the latter state that *Culex sollicitans* is not concerned with the spread of yellow fever and malaria. If this is what Beauperthuy meant, then Beauperthuy, so far as we know at present, was quite correct. It is certainly a curious way to belittle a man by showing that he was right, even though his correctness consisted in making a negative assertion. In this connexion surely Dr. Seidelin meant to quote Guiteras as saying “harmless,” not “harmful”; otherwise his argument is still more involved.

I have written at some length, for my recent visit to the West Indies and South America stimulated my interest in Beauperthuy and his prophecies. At the same time, had it not been for the war there would have been no need for me to undertake the defence of my very mild suggestion. My friend Dr. Paez, of Ciudad Bolivar, tells me that Professor Blanchard, of Paris, had prepared a special paper on Beauperthuy and his work for the *Archives de Parasitologie*. It would have seen the light ere now but for the outbreak of hostilities. I am sensible of the fact that the knowledge of the subject which I possess is not sufficient to enable me to class Beauperthuy beyond giving him an equal place with King in the Valhalla of the mosquito theorists. Hence I am content to leave the former and his claims to recognition in the hands of his distinguished countryman, although, thanks to the kindness of Dr. Paez, I hope soon to read Beauperthuy in the original and to find out how his “zancudo bobo” strikes me, and whether I agree with Guiteras or Agramonte.

I am, Sir, yours faithfully,

ANDREW BALFOUR.

Wellcome Bureau of Scientific Research, Henrietta-street, Cavendish-square, W., March 18th, 1915.

FOREIGN SERVICE AND THE AGE LIMIT.

To the Editor of THE LANCET.

SIR,—Sir Alfred Keogh in his letter in your issue of March 13th (p. 572) makes a stipulation in paragraph 4 which must limit considerably the numbers at his disposal. He says that except in special cases men of over 40 years of age are not sent overseas. It seems that no distinction is made between two entirely different branches of the medical service in France. On the one hand, there is the work actually at the front, on the lines of communication, &c.; and on the other, the work at the base hospitals. Perhaps for the former, where severe conditions are inevitable, an age limit of 40 is desirable, but for work at the base hospitals surely the services of men of experience, even though past the magic age, are not only welcome but indispensable. If a strict age limit is made it will necessarily follow that the base hospitals will be staffed by young, inexperienced men, who, as compared with the civil hospital standard, are not surgeons at all, and yet they must decide questions and perform operations that require years of training. My own experience of this campaign in France assures me that the work of a surgeon at the base hospitals is not nearly as trying as the daily work of an operating surgeon at home, and could easily be done by men between 40 and 60, an age when experience and matured judgment are at their best. If this suggestion of supplying older men in the base hospitals could be adopted it would release a large number of younger men, who would, I know, jump at the chance of getting right to the front.

I am, Sir, yours faithfully,

Harley-street, W., March 16th, 1915.

H. W. CARSON.

TREATMENT OF PAINFUL FROST-BITE.

To the Editor of THE LANCET.

SIR,—The problem of how best to treat painful frost-bitten feet is one which doubtless has caused those in charge of military wards some anxiety.

The best remedy I have found to be the following:—

R. Cocainæ...	...	...	gr. viii.
Ol. olivæ...	...	...	3 iv.
Liq. calcis	...	...	3 iv.

Which simply means carron oil and cocaine. A small quantity is rubbed into the feet twice daily, special attention being given to the toes. The feet are massaged with it for a few minutes, afterwards being wrapped up in cotton-wool. It is an improvement to add 1 ounce of liquid paraffin to 4 ounces of carron oil. By this addition it prevents it oxidising so quickly and also from drying up so rapidly, and makes it less liable to rancidity. When the oil dries on the feet the following dusted on is an excellent powder: camphor, gr. xxxv.; zinc oxide and pulv. amyli, aa 3 ss.

In all my recent cases in which there has been no ulceration it has been entirely successful; one advantage of this form of treatment is that the patient is able to sleep without any narcotic. When the acute stage passes off, the carron oil and cocaine are mixed with equal parts of carbolic oil, the percentage of which is increased as the pain decreases. Another very important consideration is the fact that the men can be the more quickly put on the convalescent list, thereby enabling them to get back sooner to the front.

I am, Sir, yours faithfully,

W. CHARLES DAVIS.

David Lewis Northern Hospital, Liverpool, March 19th, 1915.

THE ANCESTRY OF EHRLICH.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 27th (p. 422) Sir W. Watson Cheyne is reported as saying, "Whatever may be thought of German Kultur in general Professor Ehrlich is the great pioneer in this work [chemotherapy]. . . . I look upon Professor Ehrlich as the greatest medical asset that the world possesses at the present time."

Now, I hope you will pardon me for pointing out that although possibly a *naturalised* German, Professor Ehrlich is stated by Dr. Garrison in his "History of Medicine," p. 95, as springing from a more ancient and more famous race—viz., the Hebrews—and Dr. Garrison also cites Cohnheim, Metchnikoff, Fränkel, Friedländer, and Neisser as belonging to the same ancestry. As Disraeli says in "Lothair," "Race is everything."

I am, Sir, yours faithfully,

Corris, Merioneth, March 19th, 1915.

E. C. B. IBOTSON.

A PLEA FOR CONSIDERATION.

To the Editor of THE LANCET.

SIR,—Your leading article with this title prompts me to write this letter, though I have not the honour to belong to the profession by which you are almost exclusively addressed.

When the Insurance Act began to increase the emoluments of practice for some practitioners who joined the panels the cry that "the doctors" were getting overpaid was raised in many quarters by persons who equally would have been opposed to the raising of the salaries offered for those posts which are now so difficult to fill. To those who think that the medical profession has been, or is ever likely to be an overpaid calling, I may commend the careful consideration of the work now being done by it on and in connexion with military service, the demand for more men to do that work, and the shortage of medical men in civil practice.

The proposition is that if the practice of medicine had offered better prospects of livelihood to the able young men who have had to choose callings for themselves during the past 30 years, there would have been a proportionately larger supply to draw upon in this great crisis of our national life. Grudgingly paid fees of the smallest possible dimensions, and salaries fixed at the lowest price to which competition can reduce them, have imposed upon many the necessity for arduous work by night and day before the bare necessities of life are earned, and have combined, under the inexorable law of supply and demand, to keep down the numbers of the medical profession in time of peace. In time of war it is too late to add to those numbers, because the training of the physician or surgeon is a matter of years not of months, and the numerical insufficiency now realised can only be made up for by strenuous devotion to duty, on the one hand, combined with reasonable patience and forbearance on the part of the public.

Neither devotion to duty nor patience will be relaxed at a time when our country with every resource at its command is fighting for the preservation of its national existence; but thoughtful citizens might well consider, when the war is over, whether a shortage of medical men is a safe national position. And if they find that it has its risks then will be the time to take the obvious measures of precaution.

I am, Sir, yours faithfully,

March 22nd, 1915.

A LAWYER.

Obituary.

WILLIAM MURRAY DOBIE, M.D. EDIN.,
M.R.C.S. ENG.

Dr. William Murray Dobie, of Chester, who died, aged 86, on March 12th, was the son of Dr. W. Johnson Dobie, of Graysford. He was born in Liverpool and received his medical education at Edinburgh, graduating M.D. at the University in that city in 1849 with the gold medal in surgery. He became M.R.C.S. Eng. in 1854. At the Edinburgh Royal Infirmary he held various residential appointments and had the advantage of studying under Syme, forming lasting friendships with Lister and Murchison. After visiting Paris, Berlin, and Dublin he commenced practice in Chester in 1855, in which year he married Janet, daughter of Mr. William Smith, of Rossett, by whom he had five daughters and five sons. Three of the sons are now medical practitioners in Chester. During the cholera epidemic in 1867 Dr. Dobie rendered great service in checking the ravages of the disease, and in connexion with this subject wrote an article on chlorine in the treatment of Asiatic cholera and choleraic diarrhoea for the *Edinburgh Medical Journal*. In 1875 he was elected honorary physician to the Chester Infirmary, and on his resignation in 1895 was made consulting physician. He was also honorary consulting physician to the Wrexham Infirmary and to the Royal Alexandra Hospital, Rhyl. From 1893 to 1895 he was President of the Chester Society of Natural Science and Literature.

In 1896 Dr. Dobie was publicly presented with his portrait in oils, painted by Mr. W. W. Oules. The then Duke of Westminster, who was supported by all the leading inhabitants of Chester and district, made the presentation. He received the freedom of the city of Chester, of which he was a magistrate, in 1897. He was much attracted by microscopical and astronomical studies, and among his early contributions to science were the discovery and description of a new crater in the moon which bears his name. Dr. Dobie, it will be remembered, attended Gladstone in his last illness.

WILLIAM GILBERT DICKINSON, M.D. DURH.,
L.R.C.P. LOND., D.P.H. ENG., M.R.C.S. ENG.

A STRENUOUS life reached its termination on March 19th, at Clifton, Bristol, where Dr. William Gilbert Dickinson had been living for a year or so since he retired from practice at Portishead. He received his medical education at St. Thomas's Hospital, and from 1875, when he obtained the Diploma of M.R.C.S. Eng., took great interest in the administration of the affairs of his College. He belonged to the Association of Members founded in 1884, and was largely instrumental in founding the Society of Members, for whom he acted as honorary secretary for 15 years, only resigning in 1909, when he left Putney for a less exacting practice at Portishead. For this long period he was one of the leaders in the demand for reform in the Royal College of Surgeons of England, but he was ever a courteous controversialist. Any and every movement for the advantage of his fellow practitioners met with his hearty support. He was therefore to be found concerned in the management of the Medical Sickness Society and of the London and Counties Medical Protection Society. He was the author of many papers on the better organisation of the medical profession.

DAVID MOORE ALEXANDER, M.D. LIVERP.

Dr. David Moore Alexander, who died on March 18th at the early age of 37, after having been ill for only a few days with pneumonia, was the only son of Dr. William Alexander, consulting surgeon to the Royal Southern Hospital, and was educated at Liverpool College and at the University of Liverpool. After graduation he studied at the Pasteur Institute in Paris. He was subsequently appointed assistant lecturer in bacteriology at the University and bacteriologist to the Liverpool corporation. He carried out several researches for the Local Government Board, the most important being in connexion with the bacteriology of infantile diarrhoea. He was secretary to the pathological meetings of the Liverpool Medical Institution, and he had just obtained a temporary commission in the Royal Army Medical Corps, and was proceeding to the front with the Liverpool Mobile Hospital as its bacteriologist. The loss of his scientific attainments to the city and the University is a great one, and by numerous friends he will be missed sorely.

THOMAS RAWDON GLYNN, M.B., B.C. CANTAB.

THE death occurred on March 9th of Dr. Thomas Rawdon Glynn at the early age of 35 years. He was the second son of Dr. T. Robinson Glynn, professor of medicine in the University of Liverpool, and brother of Dr. Ernest E. Glynn, the professor of pathology there. He was educated at Liverpool College and the University of Cambridge. After graduating in medicine in 1910 he held the usual resident appointments at the Liverpool Royal Infirmary, and later was elected physician to the Hospital for Consumption and Diseases of the Chest, Liverpool. Some years ago he discovered that he was suffering from a malady which would in all probability put a term to his existence in a few years. He determined, however, that he would not allow this knowledge to interfere with his professional aims and usefulness, and while not neglecting rational precautions to preserve his health he gladly undertook whatever work came to his hand. He continued at work until a few weeks ago, when he went to stay at his father's country house, Nerquis Hall, Flintshire, where he passed peacefully away. He is mourned by many friends, and his persistence in work almost up to the last without any complaining—in fact, few but his relatives knew of his illness—was a fine example of courage.

ERRATUM.—The age of Sir George Turner was wrongly stated in our obituary notice last week. A personal friend of his points out that Sir George Turner was born on Feb. 10th, 1848. He was therefore in his 68th year at the time of his death.

TUBERCULOSIS DISPENSARY FOR TORQUAY.—

At the last meeting of the Devon County Council it was reported that a provisional arrangement had been come to for settling the action which had been commenced with a view to restraining the county council from using the residence, "Larchmont," Torquay, as a dispensary for tuberculosis. The council has decided to reimburse the legal costs of the owners of the property, which amount to about £117, and to erect a boundary wall on both sides of the premises. As already mentioned in THE LANCET, there has been much local opposition to the scheme, so that the agreement is regarded as a satisfactory termination of a very troublesome matter.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE demands on the Fund made by the needs of refugee doctors and pharmacists and their families and dependants have been a little heavier of late, one reason being that the need for clothes is growing with the length of exile.

It has been possible to find occupation for a certain number of Belgian doctors in British civilian practice, when the Fund has defrayed the expenses of registration; but the total of refugee doctors has been decreased by the absorption of a certain number of them into the Belgian army, where it is understood there is still need of men to take medico-military commissions. Those Belgian medical men whose age, health, or private engagements prevent them from serving their cause in this way would find it much easier to obtain posts in this country if they could speak a little English, and some surprise has been expressed that so few of them have as yet taken advantage of the facilities which have been offered in this direction.

The week's subscriptions include additions to many lists that have been open for some time, and in certain cases the aggregate of the donations up to date is published.

MANCHESTER AND DISTRICT.

Dr. E. Brockbank announces that £473 6s. 6d. had been received from medical men and the general public in Manchester and the district up to March 21st, and £10 4s. 11d. from the pharmacists. This local list will now close, and Dr. Brockbank, the secretary (Northern Assurance Buildings, Albert-square, Manchester), will be glad to receive any subscriptions immediately, and to hear if any of the contributions have not been acknowledged in the journals. The following additional subscriptions have been received:—

£ s. d.	£ s. d.
Dr. J. B. Dalton, Dr.	Mr. H. L. Whitestone ... 1 1 0
A. E. Finney, Mr. J.	Dr. G. R. Gordon ... 1 1 0
Gilmour, Mr. J. H.	Mr. W. P. Lynn ... 1 1 0
Hacking, and Mr. J. N.	Dr. J. H. Godson ... 1 1 0
Platt ... 4 4 0	Dr. C. Hawkins Craig ... 1 1 0
Dr. W. White ... 2 2 0	Dr. H. Mackenzie ... 1 1 0
Dr. P. L. Pearce ... 1 1 0	Dr. F. C. Scotson ... 1 1 0
Dr. O. H. Woodcock ... 1 1 0	C. N. ... 0 7 0

THE WEEK'S SUBSCRIPTIONS.

The subscriptions received by Dr. Des Vœux up to Tuesday evening last, in addition to those previously acknowledged, and not including money collected by certain local funds, and the Scottish and Irish Funds, are as follows:—

£ s. d.	£ s. d.
Shropshire and Mid-Wales Branch, B. M. A. (sixth donation, total £452s. 6d.)	£124 12s. 6d. (per Dr. Major Greenwood, Hon. Treas.) ... 2 0 0
Dr. L. E. Dickson ... 0 10 6	South-West Wales Division, B. M. A. (per Dr. D. R. Price, Hon. Sec.)—
"J. M." ... 25 0 0	Anon. ... 0 10 0
Dr. Wm. B. Jack ... 1 1 0	Norwich Division, B. M. A. (third donation, total £51 3s.) (per Dr. G. P. C. Claridge, Hon. Sec.)—
Kesteven Division, B. M. A. (per Dr. C. H. D. Robbs, Hon. Sec.)—	Mr. F. P. Bush ... 3 3 0
Dr. T. T. Kelly ... 1 1 0	Mr. E. W. Everett ... 2 2 0
Dr. J. D. Campbell ... 1 1 0	Mr. B. K. Nutman ... 2 2 0
Dr. F. de Havilland Hall (third donation, total £73s.) ... 2 0 0	Mr. F. Preston ... 2 2 0
Société Belge de Médecine en Angleterre (per Dr. Clément Philippe, Président)	Dr. Henry Watson ... 5 5 0
Dr. Linossier, Dr. Jaricot (Vichy), Dr. Langenhayen (Menton) ... 49 2 6	Birmingham Local Committee (twelfth donation, total £328 1s. 3d.) (per Dr. R. Sandby)—
Brussels Medical Graduates' Association (sixth donation, total	Dr. F. Bonner Feast (proceeds of Whist Party) ... 7 7 6

£ s. d.	£ s. d.
North of England Branch of Belgian Doctors' and Pharmacists' Relief Fund (fourth donation, total £259 18s.) (per Dr. James Don and Mr. A. S. Percival, Hon. Secs.)—	Dr. P. J. Sheely ... 2 2 0
Dr. J. S. McCracken ... 3 3 0	Dr. A. Bruce Low ... 1 1 0
Dr. C. F. D. Hammond ... 0 10 6	Dr. Geo. J. Williams ... 1 1 0
Dr. L. G. Dillon ... 2 2 0	Mrs. Priestman ... 0 10 6
Dr. Jas. Hudson ... 5 5 0	Dr. J. McBain ... 1 1 0
Dr. J. MacFadyen ... 1 1 0	Dr. John Galloway ... 1 1 0
Dr. and Mrs. D. Wells Patterson ... 2 2 0	Dr. J. A. Naismith ... 2 2 0
Dr. J. R. Lownds ... 2 2 0	Dr. R. J. Weidner ... 2 2 0
Dr. H. Brunton Angus ... 5 5 0	Dr. Adam Wilson ... 3 3 0
Dr. J. Allan Brand (part proceeds of sale of Motor Car) ... 20 14 0	Dr. R. A. Bolam ... 3 3 0
Dr. R. Dagger ... 2 2 0	Dr. M. Caldwell ... 1 1 0
Dr. A. M. Martin ... 3 3 0	Dr. G. Y. Caldwell ... 2 2 0
Dr. Chas. J. Gibb ... 2 2 0	Dr. A. Hay Bower ... 1 1 0
Dr. H. Paige ... 1 1 0	Dr. Wm. Bower ... 1 1 0
Dr. Neil MacLay ... 5 5 0	Dr. A. D. Kelly ... 1 1 0
Dr. Ed. Prall ... 1 0 0	Dr. Angus Campbell ... 1 1 0
Dr. Moffat Young ... 1 1 0	Dr. John Waddy ... 2 2 0
Dr. J. W. Smith and Son ... 5 5 0	Dr. H. P. Bennett ... 1 1 0
Dr. L. A. H. Bulkeley ... 1 1 0	Dr. H. St. J. Boswell ... 1 1 0
Dr. Wm. Robinson ... 3 3 0	Dr. D. W. Inglis ... 1 1 0
Dr. Robert Forsyth ... 2 2 0	Dr. Wm. Jaques ... 1 1 0
Dr. A. Dougall ... 1 1 0	Dr. Andrew Smith ... 2 2 0
Dr. Charles Stuart ... 1 1 0	Oxford and District Chemists' Association (per Mr. H. C. Goodall) ... 2 2 0
Dr. W. S. Dickie ... 2 2 0	Mr. J. A. South ... 1 1 0
Dr. S. G. Mostyn ... 1 1 0	Gateshead Pharmacists' Association, collected by (per Mr. A. D. Wyllie)—
Dr. J. J. French ... 1 1 0	Mr. A. B. Beaton ... 0 10 0
Dr. H. Kershaw ... 3 3 0	Mr. Jas. Chapman ... 1 1 0
Dr. G. F. Longbotham ... 2 2 0	Bradford Pharmacists' Association (per Mr. W. I. Jolly) ... 10 0 0
Dr. A. Paget Steavenson ... 2 2 0	Mr. G. E. M. Knight ... 1 1 0
	Mr. F. G. Knight ... 1 1 0
	Mr. J. Evans (proceeds of Dependents' Prescriptions) ... 0 5 0
	Mr. J. A. Rees ... 1 1 0
	Mr. G. V. Musson ... 0 5 0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd. £8250 had passed into the treasurer's hands by Tuesday last, the sum not including the Scottish and Irish and several large local funds.

Last week an acknowledgment in the subscription list as follows: Messrs. Benger, Ltd., £26 5s. 0d., should read, Messrs. Benger's Food, Ltd., £26 5s. 0d. Mr. and Mrs. Dinphie, £5, should read, Mr. and Mrs. Dunphie, £5.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge with thanks the receipt of surgical instruments kindly contributed by the following gentlemen since the publication of the last list:—

Dr. Ick Hewins, Tokomaru Bay, New Zealand; Dr. C. E. Hardyman, Bramerton, Norwich; Dr. James Hudson, Newcastle-on-Tyne; and the Library of the Manchester Medical Society (per Dr. Brockbank).

DONATIONS AND BEQUESTS.—The late Miss E. Addiscott, of Clifton, has bequeathed £1000 each to the Bristol Children's Hospital, the Bristol Dispensary, and the Bristol Medical Mission.—Under the will of the late Mr. William Edgar Allen, of Sheffield, the Hospital for Consumption at Ventnor will receive £1000 and the Mission to Lepers in India will benefit by a similar amount. The University of Sheffield benefits largely under the will, £5000 being placed at the disposal of the applied science department, besides bequests for the founding of scholarships and exhibitions.—By the will of the late Sir J. Donaldson a fund, to be called the Lady Donaldson Fund, will be established in the St. Andrews University for aiding students attacked by illness or labouring under disease during attendance at the University.—The following legacies have been left under the will of the late Mr. Charles Vivian, of Bedford: £5050 to the Middlesex Hospital, £4000 each to the London Hospital for general purposes and Dr. Barnardo's Homes, £3000 to the Bedford County Hospital, and £2000 to the Cancer Hospital, Brompton.

The War.

THE CASUALTY LIST.

THE casualties among officers in the Expeditionary Force reported since our last issue include the names of the following medical officers:—Killed: Lieutenant W. T. McCurry, R.A.M.C., and Lieutenant J. R. Waddy, R.A.M.C. Died of wounds: Lieutenant D. C. Turnbull, R.A.M.C. Wounded: Captain F. O'D. Fawcett, I.M.S., Captain J. Taylor, I.M.S., Lieutenant F. C. Davidson, R.A.M.C., and Lieutenant A. G. Biggam, R.A.M.C.

THE INCREASED PREPARATIONS FOR THE WOUNDED.

Clearly, before many months, or perhaps weeks, have passed the accommodation for the sick and wounded from the front will have to be considerably increased, and in addition to the provision made at general hospitals other institutions all over the country for this purpose are being requisitioned by the War Office. Although the demand for sick and wounded accommodation will be great, we have every confidence that the need will be adequately met. But the proper housing of the sick and wounded is only one of the problems: there remains the question of nursing. For many cases any woman possessed of the nursing temperament may, with a short training, become an efficient nurse to work under the supervision of a fully-trained chief, and a suggestion by Lord Knutsford that the best way of meeting the increased demand for nurses would be for hospitals to take probationers and begin their training at once deserves earnest consideration. The London Hospital, he says, has already taken 70 short-time probationers who "will be of infinite use to work under trained supervision in any of the new hospitals which are to be opened." This will be only extending the condition of things which normally prevails, inasmuch as probationers in our large hospitals are always working under trained nurses. Those who have already received some training under the Voluntary Aid schemes and under the Red Cross, as well as private first-aid students, should make valuable nurses with a short hospital training; and if they were content to confine their services to this country and not aspire to work abroad, where trained supervision is not so easy to provide, much good might result. It is not expected that such nurses should continue in this vocation after the war, but the knowledge which they would have gained would be of incalculable value in their own homes, and perhaps prove an efficient aid in promoting the health and well-being of the country. Among minor problems, a larger use of partially trained nurses obviously necessitates a better classification of the wounded as they are drafted into the various institutions; also there is the question of housing the nurses themselves. But the whole question, or rather series of questions, we doubt not will be easily solved in the course of events by the common-sense of the authorities, combined with the benevolence and goodwill of the community generally.

THE ITALIAN MEDICAL SERVICE.

An important discussion took place in the Italian Senate on March 13th upon this subject. The Minister Zupelli stated that the civilian members of the profession would be called upon; that they would be given temporary rank of lieutenant or

captain up to 36 years of age, and higher ranks in the base hospitals beyond the fighting line; that university clinics with all their personnel would, wherever possible, be mobilised *en bloc* for the reserve hospitals, and that the personnel and material of the Croce Rossa would be placed under the command of the Army Medical Department. The Army Medical Staff consists at present of 800 officers on the active list, 1800 on the auxiliary list, and 1800 between the Territorial and reserve establishments. This means, as Senator Maragliano pointed out, a shortage of some thousands of medical officers in the case of a European war. Senator Zupelli alluded to the outbreak of cerebro-spinal fever in certain garrisons, but declared that there had been no fresh cases for some days. There had been 350 cases in all, with 140 deaths. Antityphoid inoculation has been made compulsory; it is expected that all the troops will have been inoculated by the middle of April. Provision is making for the adequate supply of antitetanic serum and anticholera vaccine. A number of the universities are holding courses in military surgery and hygiene for practitioners and senior students.

THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE AND MEDICAL OVERPRESSURE.

This committee has issued the following memorandum. The Director-General of the Army Medical Service, in his public letter of March 10th, makes the following statement: "The need for medical men both for home and foreign service is acute. We want every qualified man who is physically fit and willing to serve." This statement must convince everyone of the seriousness of the problem of medical supply, civil as well as military. As a contribution to its solution the Emergency Committee, in the interest of the nation, desire to make through the press the following appeals:—

1. *To the public.*—It will materially help to relieve the great strain now imposed upon the medical practitioners remaining at their posts throughout the country, many of whom are at present working 15 to 16 hours a day, if patients and their friends will make a point of sending messages for the doctor as early as possible in the morning, so that the doctor may arrange his daily round in the way most economical of time. In many parts of the country this practice has already been partially adopted. We ask everyone to give effect to the suggestion. Where the case is not an urgent one, and a visit on the next day would suffice, this fact should always be stated in the message.

2. *To the local educational authorities.*—Regular medical inspection of school children is very important, but it is not nearly so urgent as attendance on patients who are dangerously ill. These have clearly the first claim for medical care. We appeal to school boards and other educational authorities to release entirely, or in part, those of their medical officers who are willing during this emergency to resume general medical work for the public. We have reason to anticipate that this proposal will not be received unsympathetically by the Scotch Education Department.

3. *To retired doctors of the profession who are still* (in Sir Alfred Keogh's words) "*physically fit and willing.*"—The Emergency Committee will be happy to hear from these, and will endeavour to give them opportunities for service in circumstances that will not involve an excessive strain.

4. *To the younger lecturers and assistants in the medical schools.*—At this time of the year, when the winter session closes, the teachers usually go for a week or ten days' well-earned holiday. We ask them this year to substitute a change of work for the customary holiday, and to offer their help to country colleagues in difficulty. Many practitioners, especially in rural districts, have been overworked for months, and some of them are breaking down under the strain. The temporary help of a professional brother from the schools

would ease this strain, while the stimulus of his timely coöperation would act as a useful tonic for the trying days that are still to come.

The Emergency Committee is confident that their action in making these appeals will not be misunderstood. The times require the mobilisation of all our professional forces. All are desirous to help if they knew how. The function of the Emergency Committee is to indicate how and where help may be most effectively afforded. Communications should be addressed to the Convener, Emergency Committee, Royal College of Physicians, Edinburgh.

THE ENGLISH HOSPITALS UNDER FRENCH MILITARY AUTHORITY.

Three hospitals, which come under the heading implied by this title, were founded in France, of which two, one at Nevers and one at Limoges, continue their work. The third, the hospital at the Hotel Majestic in Paris, was closed some weeks ago. The hospitals are largely staffed through the Union des Femmes de France, one of the three branches of the Croix Rouge Française, to which body the defunct Hotel Majestic hospital definitely belonged. The hospitals at Limoges and Nevers, ranking as French military hospitals under the chief French medical officer of the XIIth Army Region for Limoges and of the VIIIth Army Region for Nevers, are subject to inspection by the French military medical authorities, and have French officials attached to them. We are indebted to Dr. Haden Guest for notes as to both hospitals during the period of their activities, signed by their principal medical officers.

Hôpital Militaire Anglais, Limoges.—This hospital, installed in the School of Art of the Musée Debouche, Limoges, was opened on Oct. 10th, 1914, with accommodation for 150 patients nominally, although frequently it has accommodated 160 and more. It is a four-storeyed building, each floor of which is divided into three main halls with smaller rooms at each end of the ground, first, and second floors; annexed to the ground floor is a glass structure which has been utilised as a receiving ward. The smaller rooms at each end of the ground floor are used as the bureau of the médecin-en-chef and the housekeeper's room respectively, while the front hall has been converted by the erection of wooden partitions into dispensary, linen-room, clerk's office, and storeroom. The second hall is the dining and recreation room for the medical staff, and the third hall is the mess-room for the French employees of the hospital. On the first floor the smaller rooms are used as operating theatre and matron's room respectively, and the larger *salles* are used as wards; a similar arrangement holds good on the second floor, except that the small rooms are used as X ray room and house surgeon's room. The whole of the top floor is taken up by nurses' dormitories. The kitchen is detached from the hospital, and outbuildings have been utilised as mortuary and storeroom for the kits of wounded soldiers. Along the front of the first and second storeys run two long corridors, at either end of which are lavatories for the use of patients and staff. The building has been admirably adapted for the purpose of a hospital; while Limoges itself is on the main line from Paris to Bordeaux, 400 kilometres from Paris.

When the hospital was first opened considerable difficulty was experienced in transporting patients from the firing line to Limoges, but men are now brought in direct from the front within 30 to 40 hours. The local expenses of running the hospital amount to about 600 francs, or £24 a day, about half of which is provided by the French Government for the maintenance of patients; to this must be added the administration expenses incurred in Paris and London. More than half of the total local expenses consist of the cost of provisions. Since the local expenses for December were about 20,000 francs, January 19,000 francs,

and February 16,000 francs, it will be seen that a vast amount of good work is being done at a minimum of expense. The working expenses have been reduced to the lowest possible figure compatible with the highest state of efficiency, and I think this hospital reflects, and will continue to reflect, much credit on the Wounded Allies Relief Committee. The following figures give the work of the hospital:—Patients treated in hospital since the opening, Oct. 10th, 1914, to Feb. 28th, 1915, number 397, of whom 247 have been discharged, 142 are still in hospital, and 8 have died. Of the total number treated in hospital, 4 were British (all discharged), 12 were African natives, and 381 were French. Of the 247 discharged from hospital, 18 were finally discharged from the army (active service), amputated or trephined; 49 were discharged to duty after 8 days' furlough; and 180 were discharged with 1 to 2 months' furlough. The number of discharges per month were: October, 4; November, 52; December, 82; January, 67; and February, 42.

Hôpital Militaire Anglais, Nevers.—Lieutenant-Colonel Charles Boyce, R.A.M.C., médecin-en-chef, writes of one month's work as follows:—"I arrived in Nevers on Jan. 24th. On the previous day a large convoy of wounded and sick numbering 79 cases were received. This number exceeded the bed accommodation by 14. There was apparently some misunderstanding, and the railway military staff, who distribute the wounded to the various hospitals, sent more cases than were asked for. Some spare beds were found, and on these and mattresses put on the floors the extra number were placed and the difficulty overcome. A considerable number of the wounded, many of whom came from the trenches in the Argonne, were suffering from very severe wounds. Their wounds were mostly resulting from high-explosive shells and shrapnel, and of these three died during the month. One was moribund on admission and died from gas gangrene, the second was due to pyæmia occurring after amputation for gangrene, and the third was wounded by a ball in the pelvis. The projectile could not be found; abscesses formed, with purulent absorption, exhaustion, and death. All the cases suffering from wounds were septic. Among those who arrived on Feb. 15th were two cases of men who had suffered merely from abrasion of the skin over the knee, but each of these was septic and with high fever. The wounded had passed, in many cases, several days between the receipt of their wounds and admission here, and only one dressing had been applied on arrival here; the dressings were soaked with discharges and very offensive.

The arrangements for the removal of the wounded from the train are excellent; the siding from the railway station at Nevers, by means of which the trains convey the wounded to the hospital, is most convenient and saves the patients much extra fatigue. On the occasion of the arrival of the wounded on Feb. 15th all the patients were transported to the hospital, their clothing taken off, they were put in bed, and were supplied with hot beef-tea in two hours—a very fine performance, which shows how well the nurses and orderlies worked. On this occasion we had 36 patients, many of whom were very severely wounded. Fresh dressings were applied to all cases requiring them, pieces of shrapnel lying superficial were removed or urgent operation was performed as soon as possible after admission, and on this occasion everyone was not attended to until 2.30 A.M. We have had a considerable number of medical cases, the greatest being in the convoy which arrived on Jan. 23rd. Amongst these were 6 cases of typhoid fever, one of whom also suffered from a fractured patella (he is now convalescent from both); 3 cases of pneumonia; several of bronchitis and lumbago, the latter the result of standing for long hours in cold water. Several cases were sent of such a trifling nature that they ought to have been forwarded to a convalescent hospital and not here.

On Jan. 24th there were 114 patients in the hospital. Between Jan. 24th and Feb. 24th 64 patients were discharged and 49 new cases admitted. Of the latter, 36 came in one convoy by train; the remainder, 13 in number, were admitted from other hospitals in Nevers. The military authorities asked us to take them in, either for operation or to relieve pressure on their hospitals. On Feb. 25th I discharged 6 cases and admitted by special request from the médecin-chefs of two hospitals, 3 cases of appendicitis and 3 men with projectiles on their bodies for X ray and operation. The first wounded arrived on Dec. 6th,

1914, and from that date until Feb. 24th, 1915, 108 operations were performed. Between Jan. 24th and Feb. 24th, the month under review, 52 were performed. These were distributed on the various floors of the hospital as follows:—

Total.	From Jan. 24th to Feb. 24th.
A. 35	A. 19
B. 43	B. 23
C. 30	C. 10
108	52

The number of patients treated at the hospital since its opening has been 239; of these 148 have been discharged and 4 have died."

THE EFFICIENCY OF THE GERMAN ARMY MEDICAL SERVICE.

A Swiss correspondent writes:—A party of Swiss and Italian doctors, all connected with the Red Cross Societies of their respective countries, have just returned from a prolonged visit to Germany and the Western battle-front, and they visited Berlin, Sedan, Saint Quentin, Brussels, and the town—naturally not named—where the German General Staff has its present headquarters. They were received everywhere with the greatest courtesy, and they express their delight at their visit and their admiration for the German Army Medical Service, and the impressions recorded by one of the party, Professor Baldo Rossi, are probably shared by the others. He says:

The organisation of the German medical service is simply wonderful. Nothing seems to have been left to chance, but, on the contrary, every detail seems to have been thought out carefully. At Berlin a large number of public and private buildings—theatres, cinematograph houses, police stations—have been handed over to the Army Medical Department, while various types of hospitals are situated at different points along the main roads which link up the capital to the fighting line. The wounded are not removed from the trenches until evening, as there is the danger of transports being attacked in the daytime by the enemy. Medical assistance is, of course, rendered immediately, and the German trenches, moreover, are not uncomfortable places. At dusk ambulances drawn by horses reach the trenches and the wounded are transferred into them. Horse ambulances are used because the roads are frequently too difficult for automobiles, and because, even were the latter used, the noise of the motors and the glare of the headlights would attract the enemy. The wounded are first taken to the medical stations situated about five miles in the rear of the trenches, each of which is under the supervision of nine doctors, of whom three are surgeons and one an oculist. These medical stations have been carefully selected and contain operating tables, instruments of the most expensive and intricate kind, and all drugs that might be required. Many of the beds in use are curious, and offer testimony to the practical nature of the Germans. The number of wounded proved so much greater than had been anticipated that the ambulance men were compelled to make beds to the number of many thousands from the boxes and cases which had contained food for the troops.

Of the usual nature of the wounds of the German soldiers Professor Rossi says:—

Most of them are caused by cannon projectiles, whereas in preceding wars injuries were mainly due to rifle fire. Wounds in the head are numerous owing to the trench fighting, which is the chief characteristic of the campaign. Instances of "frozen feet" are not frequent, one reason being that the German soldiers wear very high boots. Amputation, practised so largely in previous wars, is now reserved by the Germans for desperate cases, so that at the end of the present war, vast and terrible though it is, mutilated men will not be very numerous.

At Brussels the party attended a conference of German medical men who discussed Belgian health problems.

HOW TO APPLY FOR A TEMPORARY COMMISSION IN THE R.A.M.C.

In reference to the appeal by Sir Alfred Keogh, published in THE LANCET of March 13th, there have been many complaints as to the difficulties of those unacquainted with official routine in taking the initial steps. If the candidate lives out of town he should apply by letter to the Secretary, War Office, Whitehall, S.W., when forms of application and conditions of service will be sent to him. It is not necessary to enclose a stamp. For those who live in London the process is simplicity itself and is graphically described by a correspondent in the *Times* of March 20th as follows:—

Go to an entrance of the War Office in Whitehall marked Enquiry Office. The policeman will direct him to a room, where he fills in a form stating the nature of his business; a clerk takes it, stamps it, and passes it on to another clerk who calls out applicant's name, gives the form to a boy messenger, and tells applicant to follow the boy. The applicant is taken to the office concerned; a courteous official hands the applicant two forms, one stating the conditions of service, the other a series of questions inquiring what are his qualifications, his age, his nationality, whether he has held any Government appointments, &c. This form he can fill in there and then or take it home and consider. The whole process did not take more than 20 minutes.

The writer in the *Times* deals, however, only with the process for obtaining the form of application. The form, when it arrives, is not explicit or very informative.

WAR PREPARATIONS IN MANCHESTER.—The military authorities have commandeered seven of the largest and most modern municipal schools in Manchester. This will necessitate other provision for the accommodation of the 8000 dispossessed school children. These seven schools will accommodate 1015 wounded soldiers; in addition, one house in Stretford will accommodate 90 beds. In Salford five schools will be taken over by the military authorities. These preparations will entail a big demand on the nursing resources of the city, for considerably over 200 trained nurses will be required. Already nearly 100 trained nurses and probationers have been enrolled to begin work this week. Since October last 50 young women have been voluntarily rendering service in various military hospitals. Many beds are occupied by wounded soldiers in the Royal Infirmary. In Salford Royal Hospital there are 145 wounded soldiers, others are in Ancoats Hospital, the Eye Hospital in the city, and the military authorities are making inquiries as to the provision of further hospital accommodation for sick and wounded soldiers at Crumpsall Infirmary, where the authorities have resolved to place every facility in the hands of the War Office. The accommodation could possibly be extended from 250 to 600 cases. A further trouble will be to obtain the additional medical assistance and additional nurses required for the 600 soldiers who may eventually be taken at Crumpsall. Of course, all this is in addition to the beds already available in the Western Base Hospital and hospitals in towns around Manchester.

PROMPT CARE OF THE WOUNDED.—The testimony to the efficiency of the work of the R.A.M.C. is almost universal, but a concrete instance may perhaps help to bring it home more in detail. A lay contemporary relates that a soldier was wounded at Neuve Chapelle at 2.30 A.M. on March 13th on his way to the trenches. A shell exploded almost in his face and he was struck in the head. He lay an hour where he fell with "shrapnel flying over him all the time," picked himself up, and was assisted to the field dressing station at 3.45 A.M., whence he was taken by motor-ambulance to Estaires Hospital, arriving there at 8 A.M. After being attended to he went in another motor-ambulance to the hospital at Merville, leaving in a hospital train at 7 P.M., and arriving at Boulogne at 9 P.M. He was taken in the hospital boat at once, was asleep when it sailed, and arrived at Southampton next day at 2 P.M., London at 7 P.M., Waterloo at 9 P.M., and in his bed at the London Hospital at midnight, 45½ hours after he was wounded.

MORE WOUNDED SOLDIERS FOR DUBLIN.—A French hospital ship arrived in the Liffey from Boulogne on Friday, March 19th, carrying 390 wounded or sick soldiers. Five deaths had occurred on the voyage. The disembarkation of the soldiers was carried out with great expedition, the R.A.M.C. receiving useful help from the St. John Ambulance Brigade. Nearly all the wounded were "stretcher cases." Of the total number about 150 were brought to Dublin Castle, the remainder being distributed among the several city hospitals. Most of the men were wounded in the recent fighting near Neuve Chapelle, and their condition is more serious than that of any previous detachment of wounded which has arrived in Dublin.

SOLDIERS' AND SAILORS' HOSTELS.—We should like to see all the big railway companies at their termini in London, Liverpool, and other large cities following the lead set by the Great Eastern Railway, which has opened a soldiers' and sailors' hostel close to Liverpool Street Station. Sleeping accommodation is provided for about 50 and provision is made for washing, drying clothes, getting hot coffee, &c., for men on service who arrive early in the morning, or have some time to wait. While a small charge is usually made to those who can pay it, the conveniences are not forbidden to those who cannot.

THE UNIVERSITIES AND WAR.—Dr. Alexander Hill, Principal of University College, Southampton, at the prize distribution there on March 22nd, stated, on the basis of an investigation made by him, that the Universities and University Colleges of the British Empire contributed over 50 per cent. of the men on military or naval service. The German Universities, on the other hand, contributed less than 20 per cent.

THE "HOSPITAL OF FRIENDSHIP."—This is the name given by Lady Bagot to the first movable hospital in Belgium, organised by her a few weeks ago in response to the urgent appeal of Inspector-General Melis, the head of the military hospitals in Belgium, with the Belgian Minister as president and Lord Charles Beresford as chairman of committee. It is now serving within a short distance of the Belgian firing line, where it serves as a half-way house between the field and the base hospital. It is constructed of wooden panels assembled by iron bolts and screws, and can be taken down and packed within 12 hours and moved on by motor lorries. The ward of 24 beds is 70 feet long, with an operating-room, kitchen, store-room, &c. The staff consists of ten doctors chosen by the Order of St. John of Jerusalem, with dressers and orderlies. The cost of maintenance amounts to a little over £50 a week. The work of the hospital is highly appreciated by our Belgian friends, and quite justifies its title. Funds are desired to enable a second ward to be opened. A guarantee of £1000 would render this practicable and maintain its 24 beds for three months. The treasurer is Mrs. Robert Crawshaw, 75, Upper Berkeley-street, Portman-square, and the bankers Messrs. Child and Co.

A FIELD BACTERIOLOGICAL LABORATORY.—A movable bacteriological laboratory on wheels has been presented through the Chancellor of the Exchequer to the Welsh Army Corps by Mrs. Lynn Thomas. The laboratory is well equipped, and is adequately ventilated and lighted, and its staff comprises a surgeon, an orderly trained to bacteriology, and a driver.

THE EDUCATION OF OFFICERS' SONS.—The council of the Imperial Service College appeal for money to enable them to educate the sons and descendants of the many officers of the army and navy who have been or shall be killed in the war leaving their families in straitened circumstances. The appeal is supported by Lord Kitchener, Sir John Jellicoe, and Sir John French, and cheques may be sent to Mr. A. W. Mayo-Robson, C.V.O., F.R.C.S., Lincoln House, Basil-street, Knightsbridge, S.W.

GRAYLINGWELL MENTAL HOSPITAL, CHICHESTER.—The West Sussex county council's asylum at Chichester, known as the Graylingwell Mental Hospital, is to be taken over by the War Office early in April for a military hospital with accommodation for 1000 wounded. The patients at present in the institution are being distributed as follows: Netherne, 137; Chartham (Kent), 103; Hellingly, 100;

Fareham, 90; Haywards Heath, 80; Barming Heath, 70; Berkshire, 60; Portsmouth (female), 60; Isle of Wight, 50; and Canterbury, 25. Private patients will be removed to Hellingly, Haywards Heath, and Isle of Wight. Dr. H. A. Kidd, the medical superintendent, will be confirmed as chief administrator of the hospital with military rank, and the whole of the existing officers and staff will be retained. There will be a consulting staff of London physicians and surgeons, a visiting staff of surgeons and physicians in the county, in addition to a large resident staff, while the nursing staff will be increased to about 200. The War Office will pay the whole of the expenses connected with the adaptation of the hospital, also the expenses of the removal of the patients.

THE late Mr. Joseph Chamberlain's house, Highbury, at Birmingham, has been placed by Mr. Austen Chamberlain at the disposal of the military authorities for use as a hospital of 125 beds.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates were successful:—

Surgery.—J. R. Crollus (Sections I. and II.), Edinburgh and London Hospital; S. C. Dyke (Sections I. and II.), St. Mary's Hospital; L. A. J. Graham (Sections I. and II.), Cambridge and Guy's Hospital; R. A. Holmes (Sections I. and II.), Guy's Hospital; S. B. King (Sections I. and II.), St. Mary's Hospital; N. W. Rawlings (Section II.), Manchester; H. B. Taylor (Sections I. and II.), St. Mary's Hospital; and A. K. S. Wyborn (Sections I. and II.), Middlesex Hospital.

Medicine.—C. D. Banes (Sections I. and II.), King's College Hospital; A. U. L. Bennett (Sections I. and II.), Royal Free Hospital and Birmingham; S. C. Dyke (Sections I. and II.), St. Mary's Hospital; J. D. Ferguson (Sections I. and II.), Leeds; R. A. Holmes (Sections I. and II.), Guy's Hospital; S. B. King (Sections I. and II.), St. Mary's Hospital; H. B. Padwick (Sections I. and II.), Cambridge and London Hospital; R. Quesada-Jiménez (Sections I. and II.), Guy's Hospital; N. W. Rawlings (Section II.), Manchester; W. H. Rhys-Jones (Sections I. and II.), Charing Cross Hospital; and H. B. Taylor (Sections I. and II.), St. Mary's Hospital.

Forensic Medicine.—B. A. Bull, Oxford and St. Bartholomew's Hospital; J. E. Cheesman and S. C. Dyke, St. Mary's Hospital; J. L. Hamilton, London Hospital; S. B. King, St. Mary's Hospital; H. B. Padwick, Cambridge and London Hospital; R. Quesada-Jiménez, Guy's Hospital; W. H. Rhys-Jones, Charing Cross Hospital; and H. B. Taylor, St. Mary's Hospital.

Midwifery.—B. A. Bull, Oxford and St. Bartholomew's Hospital; and S. C. Dyke and H. B. Taylor, St. Mary's Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—J. R. Crollus, S. C. Dyke, R. A. Holmes, S. B. King, N. W. Rawlings, H. B. Taylor, and A. K. S. Wyborn.

UNIVERSITY OF SHEFFIELD.—The following candidates have passed the Second Examination for the degrees of M.B., Ch.B.:—

Annie Clark, William Collins, Ethel Mary Mathews, and Winifred Hannah Wells (with distinction in Anatomy and Physiology).

UNIVERSITY OF DURHAM (FACULTY OF MEDICINE).—At the second examination for the degree of Bachelor of Medicine the following candidates have passed in Anatomy and Physiology: Ewart Gordon Anderson (second-class honours), James Allan Berry (second-class honours), James Struthers Clark, Leonard Wilfrid Hearn, George Malayramon Kerry, William McDonald Pettigrew, and William Arthur Tweddle.

UNIVERSITY OF BRISTOL.—At the examination for the degree of M.D. Frederick Percival Mackie passed with honours.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on March 11th, Sir Francis H. Champneys being in the chair. A letter was considered from the Clerk of the Council transmitting a copy of a letter from the Midwives Institute embodying a resolution passed by the council of the institute concerning the appointment by local bodies of unqualified and inexperienced women as inspectors of midwives, and inquiring whether the Board has any information justifying the implication conveyed by the resolution. The Board directed that the Clerk of the Council be informed that the Board has no evidence of the appointment on a large scale of improperly qualified women as inspectors

of midwives; one such case has recently come before it. The Board understands from one of its number that the resolution of the Midwives Institute referred to apprehensions in the future rather than to delinquencies in the past. With regard to the future, the Board thinks that it is highly advisable that persons who are appointed to supervise others should have received at least the amount of training possessed by those whom they supervise; otherwise their knowledge is almost sure to be insufficient to command the respect which their orders and advice ought to command. On the other hand, it is impossible to maintain that the mere possession of the Board's certificate guarantees all the qualities desirable in an inspector of midwives. A letter was considered from the medical officer of health of South Shields asking the opinion of the Board upon the position of a midwife who delivers a woman on the instructions and in the absence of a medical practitioner already engaged for the confinement. The Board decided that the reply be that they consider that as regards the relation of the doctor and midwife to the patient no harm is done if the patient clearly understands from the doctor that he will not attend the confinement if normal. If the doctor is engaged to attend the confinement whether normal or abnormal the midwife is acting as a monthly nurse; if she is engaged to attend the case she is acting as a midwife, and is bound by all the rules of the Board. A letter was considered from the county medical officer of health of Lancashire asking the opinion of the Board on his suggestion that it should be obligatory on a candidate for the Board's examination to take a course of three or four months' training in a hospital or in some other approved institution, and that she should not be permitted to receive the whole of her training under the supervision of a midwife who is not necessarily a trained nurse. The Board directed that the medical officer be informed that they have passed a resolution in favour of extending the period of training to six months.

ROYAL SOCIETY OF MEDICINE.—We are asked to state that the meeting of the Section of Pathology announced for March 30th will not be held.

MEETING OF THE BRITISH ASSOCIATION IN SEPTEMBER.—It has been resolved that Manchester will receive the British Association this year, but on account of the war the customary hospitality and entertainments—i.e., the social side—must be curtailed and restricted. The usual sectional meetings for scientific work and the public lectures will be carried through. The meeting will be held in the second week of September. The buildings of the University and those of the Municipal Technical School will be available for the meetings of the sections. The continuity of the meetings of the Association has been unbroken since the Association was founded in 1831.

APOTHECARIES' HALL OF IRELAND.—On St. Patrick's night, March 17th, the Governor, Dr. J. C. McWalter, entertained a large company to dinner in the Gresham Hotel, Dublin, when among the speakers was the new Provost of Trinity College, Dublin, Rev. J. P. Mahaffy, whose great-grandfather, John Pentland, was a member of the original corporation of the Apothecaries' Hall of Ireland.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.—At the seventy-fifth annual meeting of subscribers to this hospital held recently, under the presidency of General A. P. Penton, the annual report stated that during 1914 the in-patients numbered 1711, the largest number on record; there were 2163 out-patients. The daily average number of occupied beds was 146. The financial statement showed an income of £8443, and a deficit balance of £2430 remaining against the institution. It was decided to allocate 50 beds for the sick and wounded soldiers, and the committee will accept contributions from the Government and also from the public in aid of this object.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of the above society was held at St. John's Hospital on March 16th, Dr. W. Knowsley Sibley being in the chair. A series of clinical cases were shown by Dr. Morgan Dockrell, Dr. J. L. Bunch, Dr. Knowsley Sibley, and Dr. Simonds Gooding. Mr. A. T. Bremner (Leicester) read a paper entitled "The Importance of Detail in the Treatment of Diseases of the Skin," which resulted in an interesting discussion.

BOOKS, ETC., RECEIVED.

- ARNOLD, EDWARD, London.
Chemistry of Colloids. By W. W. Taylor, M.A., D.Sc. Price 7s. 6d. net.
- ASSURANCE MEDICAL SOCIETY, London.
Transactions of the Life Assurance Medical Officers' Association, London, 1912-1913.
- BAILLIÈRE, J. B., ET FILS, Paris.
Précis de Pathologie Interne. Maladies de l'appareil Respiratoire et de l'appareil Circulatoire. Par les Drs. Loeper, Josué, Faisseau, et Paillard. Price Fr.14.
Déséquilibre du Ventre et Névropathies Consécutives. Traitement par les Agents Physiques. Par le Dr. A. Fraikin. Price 1.50 francs.
- BAILLIÈRE, TINDALL, AND COX, London.
Mutter's Short Manual of Analytical Chemistry. Edited by J. Thomas, B.Sc. Lond. Tenth edition. Price 6s. net.
The Treatment, Prevention, and Cure of Tuberculosis and Lupus with Oleum Allii. By William C. Minchin, M.D. Dub. Second edition. Price 5s. net.
The Dispensary Treatment of Pulmonary Tuberculosis. By Hilda Clark, M.B., B.Sc. Lond. Price 15s. net.
Prescribers' Formulary and Index of Pharmacy adapted to the 1914 Pharmacopœia. By T. P. Beddoes, M.B., B.C. Camb., F.R.C.S. Eng. Second edition. Price 2s. 6d. net.
- BALE, JOHN, SONS, AND DANIELSSON, LIMITED, London.
The Inevitable Complement: The Care and After-Care of Consumptives. By Harold Vallow, M.D. Price 1s. 6d. net.
- BRITISH DENTAL ASSOCIATION, 19, Hanover-square, London.
Report on Odontomes by the Committee appointed by the British Dental Association. Price 7s. 6d. net.
- BRITISH MUSEUM, South Kensington, S.W.
Guide to the Fossil Remains of Man. Price 4d.
- BUTTERWORTH AND CO. AND SHAW AND SONS, London.
Archbold's Lunacy and Mental Deficiency. By James William Greig, of Lincoln's Inn, and William H. Gattie, of Gray's Inn. Fifth edition. Price 36s. net.
- CHAPMAN AND HALL, LIMITED, London.
Words by the Wayside. By James Rhoades. Price 3s. 6d. net.
- CHICAGO MEDICAL BOOK COMPANY, Chicago.
Glaucoma: A Symposium Presented at a meeting of the Chicago Ophthalmic Society, November, 1913. Edited by W. O. Nance, M.D., and W. H. Peck, M.D. Price 6s.
- CHURCHILL, J. AND A., London.
The Vicious Circles in Neurasthenia and their Treatment. By Jamieson B. Hurry, M.A., M.D. Cantab. Price 3s. 6d. net.
Squire's Pocket Companion to the British Pharmacopœia. By Peter Wyatt Squire. Second edition. Price 10s. 6d. net.
Domestic Hygiene for Nurses. By Fred J. Smith, M.D., F.R.C.P. Second edition. Price 2s. 6d. net.
- GRIFFIN, CHARLES, AND CO., London.
Transactions of the Medico-Legal Society, 1913-1914. Vol. XI. Edited by R. Henslowe Wellington.
- HEINEMANN, WILLIAM, London.
Students' Text-book of Hygiene. By W. James Wilson, M.D., D.Sc., D.P.H. Price 8s. 6d. net.
- KIMPTON, HENRY, London and Glasgow.
Text-book of Radiology. By Edward Reginald Morton, M.D., C.M. Trin. Tor., F.R.C.S. Edin., &c. Price 7s. 6d. net.
- LAURIE, T. WERNER, London.
Thou art the Man: the Story of a Great Crime. By Sidney Dark. Price 1s. net.
Love Letters to a Soldier. By May Aldington. Price 1s. net.
- LEWIS, H. K., London.
The Localisation of Bullets and Shell Fragments: a Record of Personal Experience. By F. Hernaman-Johnson, M.D. Price 1s. net.
Diagnostics and Treatment of Tropical Diseases. By E. R. Stitt, A.B., Ph.G., M.D., Medical Director, U.S. Navy. Price 8s. net.
- J. B. LIPPINCOTT COMPANY, Philadelphia and London.
Mental Medicine and Nursing, for the Use of Training Schools for Nurses and in Medical Classes and a Ready Reference for the General Practitioner. By R. H. Chase, A.M., M.D. Price 6s. net.
- LIVINGSTONE, E. AND S., Edinburgh.
Catechism Series:—
Botany, Part I., second edition, revised and enlarged. Price 1s. net.
Medicine, Part II., second edition, revised and enlarged. Price 1s. net.
Operative Surgery, Part II., first edition, with plates. Price 1s. net.
Husband's Students' Pocket Prescriber and Guide to Prescription Writing. By David Mitchell Macdonald, M.D. Fifth edition, revised according to the British Pharmacopœia, 1914. Price 1s. 6d. net.
- MARLBOROUGH, E. AND CO., London.
Egyptian (Arabic) Self-Taught. By Captain C. A. Thimm. Fourth edition, revised and enlarged, by Major R. A. Marriott, D.S.O. Price 2s. 6d.
- PITMAN, SIR ISAAC, AND SONS, London.
English Medical Women: Glimpses of their Work in Peace and War. By A. H. Bennett. With Preface by Stephen Paget, F.R.C.S. Price 3s. 6d.
- ROYAL COLLEGE OF PHYSICIANS OF LONDON.
List of the Fellows, Members, Extra-Licentiate, and Licentiate, 1915.
- SMITH, ELDER, AND CO., London.
Paris Waits: 1914. By M. E. Clarke. Price 5s. net.
- UNIVERSITY PRESS, Cambridge.
Sewage Purification and Disposal. By G. Bertram Kerkshaw, M.Inst.C.E. Price 12s. net.
- WRIGHT, JOHN, AND SONS, Bristol.
Evolution and Disease. By J. T. C. Nash, Captain, R.A.M.C. (T.F.). Price 3s. 6d. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ECCLES, H. ANNESLEY, M.D. Lond., has been appointed Honorary Radiographer to the Croydon General Hospital.
 GILES, J. D., M.D. Edin., has been appointed Medical Superintendent at the Salford Union Infirmary.
 HAWKSHAW, M. J., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Ballinrobe District of the county of Mayo.
 JONES, D. T. G., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Llansawel District of the county of Carmarthen.
 MILLER, ADA, M.D. Edin., has been appointed Lady Medical Officer and Lecturer in School Hygiene at the Moray House Training College by the Edinburgh Provincial Committee for the Training of Teachers.
 STOWERS, J. H., M.D. Brux., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Consulting Dermatologist to the Foundling Hospital, London.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.
 BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry. Also Junior House Surgeon. Salary £100 per annum, with board and laundry.
 BIRMINGHAM, CITY OF.—Female Assistant Medical Officer of Health. Salary £300 per annum.
 BIRMINGHAM, CITY MENTAL HOSPITAL, Winson Green.—Assistant Medical Officer. Salary £250 per annum, with apartments, board, laundry, &c.
 BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, attendance, &c.
 BOOTLE BOROUGH HOSPITAL.—Senior and Junior House Surgeons. Salary £150 and £130 per annum respectively, with residence, board, and laundry.
 BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Three House Surgeons for six months. Salary £100 per annum, with board, lodging, and washing.
 BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
 BRADFORD EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £350 per annum.
 BRADFORD POOR-LAW UNION, ST. LUKE'S HOSPITAL AND UNION HOUSE.—Assistant Resident Medical Officer, unmarried. Salary £200 per annum, with rations, apartments, and washing.
 BRECONSHIRE COUNTY COUNCIL.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.
 BRISTOL GENERAL HOSPITAL.—First House Physician, Second House Physician, House Surgeon, and Casualty House Surgeon, also Resident Obstetric Officer, for six months. Salary at rate of £150 per annum, with board, residence, &c.
 BRISTOL ROYAL INFIRMARY.—Three House Surgeons. Two House Physicians, and One Obstetric and Ophthalmic House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
 BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.
 BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.
 CANTERBURY, KENT COUNTY ASYLUM, Chatham.—Third Junior Assistant Medical Officer. Salary £250 per annum, with quarters, board, washing, &c.
 CANTERBURY MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, lodging, washing, and attendance.
 CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon. Salary £150 per annum, with board, apartments, and laundry.
 CROYDON BOROUGH HOSPITAL.—Assistant Resident Medical Officer. Salary £150 per annum, with board, residence and laundry.
 CROYDON UNION.—Assistant Medical Superintendent of Infirmary and Assistant Medical Officer of Workhouse and Children's Homes. Salary £225 per annum, with usual residential allowances.
 DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £200 per annum.
 DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Also Assistant House Surgeon for six months. Salary £150 and £120 per annum respectively, with board, residence, attendance, and washing.
 DUMFRIES, CRICHTON ROYAL.—Temporary Assistant Physician. Salary at rate of 5 guineas a week, with apartments, board, laundry, and attendance.
 ECCLES AND PATRICKROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, residence, and laundry.
 EDINBURGH, ROYAL EDINBURGH ASYLUM, Morningside.—Assistant Medical Officer. Salary £175 per annum, with board, rooms, &c.
 GLASGOW, CORPORATION OF THE CITY OF.—Assistant Tuberculosis Officer. Salary at rate of £350 per annum.
 GRANGE-OVER-SANDS, WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant to Medical Superintendent. Salary £200 per annum, with board and laundry.
 HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.
 HAMPSHIRE COUNTY COUNCIL.—Assistant County Medical Officer of Health. Salary £300.
 HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board, residence, &c.
 HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.
 HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Resident House Surgeon and Resident Assistant House Surgeon. Salary £60 and £50 per annum respectively, with board and laundry. Also Resident House Surgeon. Salary £100 per annum, with board and laundry.
 KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, apartments, and washing.
 KENT COUNTY COUNCIL.—Tuberculosis Officer. Salary at rate of £500 per annum.
 LANCAHIRE COUNTY COUNCIL, ELSWICK SANATORIUM, near Kirkham.—Medical Superintendent. Salary £300 per annum, with board, apartments, and washing.
 LEEDS GENERAL INFIRMARY.—Ophthalmic House Surgeon for six months. Salary £50 per annum, with board, residence, and laundry. Also Resident Medical Officer for six months at Ida and Robert Arthington Hospitals. Salary £60 per annum, with board, residence, and laundry.
 LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Surgeons and One House Physician, each for six months. Salary at rate of £80 per annum, with board and residence.
 LONDON LOCK HOSPITAL, Harrow-road, W.—House Surgeon for six months. Salary at rate of £130 per annum, with rooms, full board, and washing.
 MAIDSTONE, KENT COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, quarters, attendance, washing, &c.
 MANCHESTER, ANCOATS HOSPITAL, Mill-street.—House Physician. Salary £80 per annum, with board and residence.
 MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Assistant Medical Officer for Out-patient Department for six months. Salary £100 per annum.
 MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.
 MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.
 MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist. Salary £60 per annum.
 MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, attendance, coal, and gas.
 MERSTHAM, SURREY COUNTY ASYLUM, Netherne.—Temporary Assistant Medical Officer. Salary £5 6s. per week, with apartments, board, attendance, and laundry.
 MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, washing, and attendance.
 MIDDLESEX HOSPITAL, W.—Two House Physicians. Board and residence provided.
 MILE END OLD TOWN INFIRMARY.—Two Assistant Medical Officers. Salary £275 per annum, with board, lodging, and washing.
 MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Senior House Surgeon for six months. Salary £100 per annum, with board, residence, and laundry.
 NETLEY, WELSH HOSPITAL.—Two Medical Officers for six months. Salary at rate of £400 per annum.
 NEWCASTLE-UPON-TYNE, POOR-LAW INSTITUTION AND INFIRMARY, Westgate-road.—Assistant Resident Medical Officer, unmarried. Salary at rate of £250 per annum, with apartments, rations, and washing.
 NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.
 NORTHAMPTON COUNTY BOROUGH EDUCATION COMMITTEE.—Dental Surgeon. Salary £250 per annum.
 NORWICH, CITY OF.—Assistant School Medical Officer. Salary £30 per month.
 PADDINGTON GREEN CHILDREN'S HOSPITAL.—Female House Physician for six months. Salary at rate of £80 per annum, with board, residence, and washing.
 QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician and House Surgeon for six months. Salary £100 per annum, with board, residence, and washing.
 ROTHERHAM COUNTY BOROUGH.—Tuberculosis Officer and Assistant School Medical Officer. Salary £350 per annum, with board and residence at Kimberworth Tuberculosis Hospital, Rotherham.
 ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £75 per annum, with board, lodging, and washing. Also Tuberculosis Officer. Salary £420 per annum.
 ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, all found.
 ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Senior and Junior Resident Medical Officers. Salary at rate of £150 and £100 per annum respectively, with board and washing.
 ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer for three months. Salary at rate of £90 per annum, with board, residence, and laundry.
 ST. MARY ISLINGTON INFIRMARY, Highgate Hill, N.—Junior Assistant Medical Officer. Salary at rate of £140 per annum, and all found.
 SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £100 per annum each, with board and residence.
 SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon, unmarried. Salary £100 and £75 per annum respectively, with apartments, board, lodging, and washing.

SERBIA FEVER HOSPITAL.—Head Physician.
SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician.
SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.
SHEFFIELD UNIVERSITY.—Joseph Hunter Chair of Pathology.
SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £110 per annum, with board and apartments.
SOUTH OF FRANCE RED CROSS HOSPITAL.—Surgeon for six months. Pay 25s. a day less 3s. 2d. for messing and apartments; £10 allowance for uniform.
SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £115 per annum, with residence, board, and washing.
TAUNTON AND SOMERSET HOSPITAL, Taunton.—Senior House Surgeon. Salary £120 per annum, with board, lodging, and laundry.
UNIVERSITY OF LONDON.—University Chair of Physiology at St. Bartholomew's Hospital Medical School. Salary £600 per annum.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon for six months. Salary £100 each, with board and lodging.
WAKEFIELD, CLAYTON HOSPITAL.—Female Junior House Surgeon. Salary £120 per annum, all found.
WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £120 per annum, with board, apartments, and laundry.
WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Registrar.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £100 per annum, with board, residence, and washing.
WEST HAM UNION.—Deputy Medical Officer at Sick Home, 95, Forest-lane, Forest Gate, E. Salary £250 per annum, with usual residential allowances. Also Female Assistant Medical Officer at Work-house, Union-road, Leytonstone, N.E. Salary £140 per annum, with usual residential allowances.
WEST RIDING OF YORKSHIRE.—Temporary Dispensary Tuberculosis Officer. Salary £400 per annum.
WESTON-SUPER-MARE HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.
WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £150 per annum, with board, lodging, and attendance.
WILLESDEN URBAN DISTRICT COUNCIL, HEALTH DEPARTMENT.—Temporary Assistant Medical Officer of Health and Temporary Assistant School Medical Officer. Salary £3 8s. per week. Also Temporary Resident Medical Officer at Infectious Diseases Hospital. Salary £6 6s. per week, with board and lodging.
WOOLWICH INFIRMARY, Plumstead.—Resident Assistant Medical Officer, unmarried. Salary £180 per annum, with apartments, rations, and washing.
WORCESTERSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £350 per annum. Also Assistant Tuberculosis Officer. Salary £350 per annum.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 47, attached more particularly to the Greenwich and Woolwich County Courts.
The Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Dripsey, in the county of Cork; and at Staplehurst, in the county of Kent.

Births, Marriages, and Deaths.

BIRTHS.

REICHWALD.—On March 14th, at Timber Hill, Ashted, Surrey, the wife of M. B. Reichwald, M.B., B.S., of a daughter.
ROSE.—On March 15th, at St. Mary's, Liphook, the wife of Captain A. M. Rose, Royal Army Medical Corps, of a daughter.
SMITH.—On March 16th, at St. Mary's-road, Doncaster, the wife of H. Gordon Smith, M.B., B.S. Lond., D.P.H., of a son.

MARRIAGES.

BOWES—GRAHAM.—On March 5th, at All Souls', Langham-place, W., Richard F. B. Bowes, B.A. Oxon., M.R.C.S., L.R.C.P., to Minnie Johnson Graham, daughter of the late David Graham and Mrs. Graham, of Aspatria, Cumberland.
HOLMES—MASSEY.—On March 22nd, at St. Stephen's, Avenue-road, Regent's Park, London, Thomas Sydney Shaw Holmes, M.B., M.Ch., F.R.C.S. Eng., to Kathleen Louise, youngest daughter of Edmonds Massey, Yew Cottage, Hoddesdon, Herts.

DEATHS.

ALEXANDER.—On March 18th, at Maycroft, Wavertree, Liverpool, David Moore Alexander, M.D., aged 37 years.
DICKINSON.—On March 19th, at Clifton, Wm. G. Dickinson, M.D., late of West Hill, Putney, aged 61 years.
HALL.—On March 14th, at the Military Hospital, Lichfield, Lieutenant H. S. Hall, R.A.M.C., aged 35 years.
HILL.—On March 17th, at Churchfields, Old Basford, Nottingham, William Henry Hill, M.B., C.M. Edin., aged 52 years.
THELWELL.—On March 14th, at Narborough, Leicestershire, Fred. W. W. Thelwell, L.S.A. Lond.
THYNE.—On March 23rd, at 1, Hamilton-mansions, Hove, Thomas Thyne, M.D., F.R.C.S., aged 75 years, late of High Barnet.
WILSON.—On March 24th, at 282, Goldhawk-road, London, Aurora Kate, beloved wife of James Wilson, M.D.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

IMPERIAL BUREAU OF ENTOMOLOGY.

THE Earl of Cromer, who was the first chairman of the managing committee of this Bureau, resigned the position recently owing to ill-health, and was succeeded by the Right Hon. Austen Chamberlain, M.P., who has prepared the report for the year 1914, which has just been presented to Parliament. In the course of it Mr. Chamberlain writes:—

"The Bureau has now been established for two years, and I am glad to be able to record the emphatic opinion of the committee that it has more than justified its existence. From many quarters the director (Mr. G. A. K. Marshall) has received appreciation of its work, and there is no reason to doubt that if the necessary funds for its maintenance are obtained it will continue to be of real assistance not only to the Dominion and Colonial Governments, but also to foreign Governments which are closely interested in entomological problems. . . . The publications of the Bureau have been continued. Every month the *Review of Applied Entomology* is published in two parts, one dealing with agricultural entomology, and the other with medical and veterinary entomology. . . . The other regular publication of the Bureau is the *Bulletin of Entomological Research*. This is issued quarterly and contains original illustrated articles. Among the most important published during the year may be mentioned contributions dealing with the bionomics of tsetse-flies by Messrs. R. W. Jack, Ll. Lloyd, R. B. Woosman, and Dr. J. O. Shircove; Dr. R. Roper's paper on the malaria-carrying mosquitoes of British North Borneo; an account of the blood-sucking insects observed by Dr. J. J. Simpson on the Gold Coast; and papers on the agricultural insect pests of Southern Nigeria by Dr. W. A. S. Lamborn and of Nyasaland by Mr. E. Ballard. . . . Two travelling entomologists have been employed in Africa as hitherto, although a period of some six months elapsed between the departure of Mr. S. A. Neave from Nyasaland to take up his duties as assistant director of the Bureau, and the appointment of Dr. W. A. S. Lamborn to succeed him as travelling entomologist in East Africa. Mr. Neave had been stationed at Mlanje for the purpose of studying the life-histories of the blood-sucking flies of the family Tabanidae, many of which undoubtedly play an important rôle in the dissemination of various diseases of domestic animals; and to enable him to carry out his researches a laboratory was built for him by the Government of Nyasaland at his headquarters. He has succeeded in discovering the breeding habits of no less than 20 different species concerning which nothing was known previously. It was at first intended that Dr. Lamborn should proceed to the East Africa and Uganda Protectorates, but on reconsideration the committee felt that his services would be more valuable for the time being in Nyasaland. Accordingly he is now working in that Protectorate, his general objects being to test, by experiment on a fairly large scale, the practicability of eradicating glossina within a given area by direct attacks upon the flies themselves, and concurrently with this experiment to test the actual effects on the fly of clearing undergrowth in order to ascertain whether the clearing really kills the flies or merely drives them elsewhere. It is anticipated that this experiment in destruction of glossina must extend over at least one year if definite information is to be obtained as to the likelihood of catching and trapping operations proving really effective in controlling the numbers of the fly. On the West Coast Dr. J. J. Simpson has been employed on special investigations connected with the glossina problem in the Northern Territories of the Gold Coast. A full account of his previous work in the Gold Coast has appeared in Vol. V. of the *Bulletin of Entomological Research*, and it was hoped that he would have been able to collect some equally useful information in the Northern Territories, but I regret to report that when he had only half completed his tour he was invalided home, and he is now recuperating in this country. Arrangements have also been made for Mr. W. F. Fiske, who had spent a year in Uganda working for the Royal Society, to carry out investigations for the Bureau in that Protectorate. He is at present living on the Sesse Islands in Victoria Nyanza. . . . The importance of the glossina investigations cannot easily be overrated, as, indeed, appears in the Report of the Sleeping Sickness Committee which the Secretary of State for the Colonies appointed to examine the question of the relation between trypanosomiasis and wild animals."

After referring in detail to the operations of the Bureau in other directions, and regretting that comparatively little progress has been made with the stegomyia survey in the

Far East, Mr. Chamberlain states that excellent results have been obtained with the Carnegie studentships, which are generously provided by Mr. Andrew Carnegie for the purpose of enabling young men selected in this country to have an opportunity of studying the American methods of dealing with noxious insects. The conference of the official entomologists of the Empire which it was proposed to hold in July next with the object of discussing various questions which closely concern the interests of the different parts of the Empire, has, owing to the war, been postponed indefinitely, but the committee trust that when circumstances permit the project will be revived.

INVALID CHILDREN'S AID ASSOCIATION.

THE annual meeting of the Invalid Children's Aid Association will be held, by permission of Mr. and Mrs. George Coats, at 11, Hill-street, Berkeley-square, London, W., on Wednesday afternoon, April 28th, at 3 o'clock. Field-Marshal Lord Grenfell will preside, and Bishop Boyd Carpenter, Lady Jellicoe, Countess Ferrers, Dr. A. J. Jex-Blake, and Captain F. Grenfell, V.C., will be among the speakers. Admission will be by ticket only, applications for which may be made to the secretary, 69, Denison House, 296, Vauxhall Bridge-road, Westminster, S.W.

CENTIGRADE AND FAHRENHEIT.

To the Editor of THE LANCET.

SIR,—An equally simple method of conversion and applicable both ways is the following:—

$$C = \frac{(F - 32) \times 5}{9} \quad F = \frac{C \times 9}{5} + 32.$$

I am, Sir, yours faithfully,
March 17th, 1915. PENROSE WILLIAMS.

THE MEDICAL PICKWICK.

THE first two numbers have appeared of an American monthly medical journal which has little to do with the serious side of medicine, but is concerned rather with the lighter aspect of the work of the doctor, the humour of the profession, its anecdotes, and its biography. We may mention a few of the articles which the numbers we have received contain. There is a study of "Moncrief's Receipts," which was published nearly 200 years ago; there is an appreciation of the veteran Dr. Abraham Jacobi; a chapter on a collection of anecdotes of Dr. John Radcliffe; and a report of "The Pickwick Medical Society," a very fair cut at only too many medical meetings; and mingled with these are many medical jokes and anecdotes, some new and sparkling, and some of a hoary antiquity that makes the reader almost regret that they have been disturbed from their well-earned rest, though of course there are always younger members of the profession to whom they may be new. We would like to mention specially an article by Dr. Frank Place on the inaccuracy of medical bibliographical references; all who have had to look up references given in papers or books will know the difficulties encountered, and this article recounts the immense trouble met with in endeavouring to find the original papers in which certain statements were made; the article is entitled "Bibliographical Bones"; etymologists may be interested to learn that in this connexion a "bone" means a mistake.

Many authors have "dropped into poetry." It may be asked, "Why Pickwick?" It is true that the word Pickwick occurs here and there, and the well-known phrase "In a Pickwickian sense" is to be found several times; but there is no attempt to bring out any of the medical aspects of Mr. Pickwick's remarkable memoirs. So far as our memory serves us, Mr. Pickwick himself nowhere expresses any opinion on a medical subject, and his stormy interview with Dr. Payne and Dr. Slammer at the Bull at Rochester and his adventures with Bob Sawyer and Benjamin Allen are his closest relations with our profession that have been recorded. But the title is quite sound if the contributors in future issues live up to it, for the sidelights on early Victorian medicine shed by Dickens in his first great book are illuminating.

MAP OF OPERATIONS IN THE NEAR EAST.

Stanford's atlas maps of the Dardanelles and the Troad and of the Bosphorus and Constantinople are of interest at the present juncture and render intelligible the Admiralty reports of operations. The two maps are on one sheet, 30 in. x 22 in., the former on the scale of 3 miles (1 : 190,080), the latter 1½ miles (1 : 95,040), to an inch. The hill features are clearly delineated, the heights being given in feet; the roads are shown, as well as the principal ruins, fountains and wells, lighthouses, lightships, anchorages, rocks, fathom lines, and direction of currents,

and the forts are marked in red with the reference letters used in the British Admiralty's reports. The maps, price, coloured sheet, 3s. (post free 3s. 5d.), or mounted to fold in case 5s. (post free 5s. 3d.), may be had from Edward Stanford, Limited, Long Acre, London, W.C.

A REMARKABLE BIRTHDAY COINCIDENCE.

To the Editor of THE LANCET.

SIR,—I think it must be an extremely rare event for three members of one family to be born on the same day of the year. On St. Patrick's Day, 1909, I delivered Mrs. B. of a son; on the same day, 1913, I again delivered her of a son; and on Wednesday last I was once more in attendance upon her, when "Patrick the third" began his earthly pilgrimage. I think this triple coincidence in one family is worth recording.

I am, Sir, yours faithfully,
WM. BOURNE HALLOWES, L.R.C.P. & S. Irel.
Newark, Notts, March 20th, 1915.

THE TECHNIQUE OF EFFECTIVE BROMIDE THERAPY IN EPILEPSY.

WE have received from the Hoffmann-La Roche Chemical Works, Limited, of Idol-lane, London, E.C., a reprint of a paper under the above heading which was read by Dr. A. Ulrich before the Medical Society of the Canton of Zürich. He institutes a salt-poor diet and exhibits "sedobrol" in epilepsy. As was pointed out in our analytical columns of July 4th, 1914, sedobrol is a combination of sodium bromide with an appetising bouillon basis. Bromide is thus given in the form of a dietetic, the patient being unaware of the presence of the drug. A free dilution of the bromide is ensured, and the physician is able to give bromide while gradually withdrawing the daily intake of sodium chloride, which can be done without rendering the diet vapid. Sodium bromide possesses a salinity similar to that of common salt.

THE MEDICAL ENTERPRISE SOCIETY, LIMITED.

WE are desired to request any members of the Medical Defence Union who are shareholders or have placed accounts for collection in the hands of "The Medical Enterprise Society, Limited," of 25, Palace Chambers, 9, Bridge-street, Westminster, S.W., to communicate with Messrs. Hempson, of 33, Henrietta-street, Strand, W.C., the solicitors to the Union.

WOMEN POLICE FOR BRIGHTON.

BETWEEN 40 and 50 enthusiastic members of the Brighton and Hove branch of the National Union of Women Workers have formed a corps of women police at Brighton and have been officially recognised. They have commenced active work, and it is considered, with so many soldiers always billeted in the town, and the number of girls ready and willing to talk to strange soldiers, sometimes regardless of consequences, that the women patrols will find many opportunities of doing useful work.

ELECTRO-MEDICAL APPARATUS.

WE have received from the General Electric Company, Limited, of Queen Victoria-street, London, E.C., a copy of their latest list of electro-medical appliances. These include apparatus for electrolysis, epilation, &c., cautery apparatus, medical and dental lamps (laryngeal, ophthalmic), massage outfits, and so forth. A good deal of care appears to have been taken to make these useful appliances convenient, suitable, and economical for the various purposes indicated.

A HOME OF REST AT NOMINAL COST.

"R. F. P." 41, Hallam-street, London, W., writes to ask if any reader knows of a home of rest for a lady, the daughter of a deceased medical man; she is incapacitated from work, having undergone an operation for radical cure of hernia, phlebitis developing, leaving a chronic swelling of the legs which will for a very long time, if not permanently, incapacitate her from earning her living.

INSTITUTION WANTED FOR A CRIPPLED GIRL.

"W. W. L." (Swansea) writes that he is interested in a little girl, 10 years of age, who from birth has been a cripple. She cannot use or control her legs, but is normal in every other way. He asks for the address of some institution where she would be both educated and medically treated, stating that the girl's parents do not know how to deal with her, while they are anxious to do the best for her future. The child's maternal uncle is prepared to meet the expense.

ANTISEPTIC PREMIER PASTE.

THIS adhesive paste has been given a considerable trial in our offices, and we can speak favourably of it. It forms a very useful medium for photographic mounts and for all departments of labelling. It is clean, soft, and sticky, and goes further than many similar pastes owing to its uniformity of composition, for there are no lumps, the starch being thoroughly gelatinised. The whole is kept sweet and free from moulds by the addition of an antiseptic essential oil. It is supplied by the British Manufacturing Company, of Beechcroft-road, Leytonstone, London, N.E.

Mr. Robert J. Hillier, M.R.C.S. (Sheffield), asks whether there is any home for feeble-minded children where a girl of a little over 2 years can be received. She has some paralysis and also occasional epileptiform attacks. She has been under observation for a week in the Children's Hospital, Sheffield, but it is not considered possible to operate. The parents cannot afford to pay.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

SECTION OF PATHOLOGY.—The meeting of this Section announced for March 30th will not be held.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Discussion on the Value of Tuberculin Treatment (opened by Dr. R. M. Leslie (Medical) and Mr. E. Gillespie (Surgical)).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY AND WEDNESDAY.—5 P.M., Arris and Gale Lectures:—Dr. D. Waterston: Further Recent Investigations in the Development of the Human Body.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 3 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 3 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases. THURSDAY.—5.15 P.M., Clinical Lecture.

MANCHESTER HOSPITALS POST-GRADUATE CLINICS.

THURSDAY.—ANCOATS HOSPITAL, Mill-street.—4.30 P.M., Medical and Surgical Cases.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed exclusively "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.
TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and not to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—MESSRS. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 24th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 18	29.53	N.	0.05	45	44	43	42	43	Overcast
" 19	29.53	N.	...	81	41	33	32	33	Overcast
" 20	29.95	N.W.	...	82	47	31	32	35	Cloudy
" 21	30.13	W.	...	87	54	35	37	42	Cloudy
" 22	30.04	N.E.	0.13	70	51	35	39	41	Fine
" 23	29.82	S.W.	0.06	72	58	41	49	50	Hazy
" 24	29.91	S.	...	78	57	50	50	51	Overcast

The following magazines, journals, &c., have been received:—

British Dental Journal, Annals of Tropical Medicine and Parasitology, American Journal of Obstetrics, Clinical Medicine, London Hospital Gazette, Annali di Medicina Navale e Coloniale, Cleveland Medical Journal, Archives of Diagnosis, St. Thomas's Hospital Gazette, St. Paul's Medical Journal, Indian Medical Record, Revista de la Sociedad Médica Argentina, Review of Neurology and Psychiatry.

Letters, each with enclosure, are also
acknowledged from—

A.—Messrs. Allen and Hanburys, Lond.; Messrs. Arnold and Sons, Lond.; Mrs. Aldis, Lond.; Mr. H. G. L. Allford, St. Leonards-on-Sea; Mr. H. Ascher, Lond.; Ashton-under-Lyne District Infirmary, Secretary of; Anglo-American Pharmaceutical Co., Croydon.

B.—Mr. E. Burgess, Lerwick; Messrs. W. H. Bailey and Son, Lond.; Dr. J. L. Bogle, Louth; Mr. H. Bailey, Lond.; Breconshire County Council, Brecon, Clerk to the; Dr. Andrew Balfour, Lond.; Mr. H. Blakeway, Lond.; British Red Cross Society, Lond.; County Secretary of; Messrs. W. Browning and Co., Lond.; Messrs. T. B. Browne, Lond.; Blackburn Corporation, Clerk to the; Dr. T. W. Widger Bovey, Bampton.

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G.—Mr. H. N. Gilbey, Lond.; Miss E. M. Gibson, Bracknell; Captain R. J. Gardner, Shorncliffe; Glasgow Corporation, Medical Officer of Health to the; Dr. D. McE. Greig, Lond.; *Gazette Médicale de Paris*.

H.—Sister Harris, Hockington; Dr. J. Holland, Swindon; Messrs. C. J. Hewlett and Son, Lond.; Messrs. Humphreys, Lond.; Mr. W. Bourne Hallows, Newark-on-Trent; Mr. Robert J. Hillier, Sheffield; Mr. H. Hancock, Lond.; Mr. W. G. Angus Hunt, Lond.; Dr. W. M. Haffkine, Calcutta.

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M.—Colonel T. J. McGann I.M.S., Bangalore; *Medical Journal of Australia*, Sydney, Manager of; Dr. A. C. N. McHattie, Nassau; Maltine Manufacturing Co., Lond.; Dr. J. A. Murray, Lond.; Medical Sickness, Annuity, and Life Assurance Friendly Society, Lond.; Dr. Reginald Miller, Lond.; Captain J. F. McMillan, R.A.M.C. (retired), Sandown; Messrs. G. Mason and Co., Lond.; Mundesley Sanatorium, Secretary of; Manchester, Clerical, &c., Association, Secretary of; *Midland Counties Herald*, Birmingham, Manager of; Dr. H. Macnaughton-Jones, Lond.

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U.—United Buyers, Ltd., Lond.; Unione Tipografico-Editrice, Turin, President of; Udaipur State, India, Chief Medical Officer to the.

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Y.—Dr. R. A. Young, Lond.

Z.—Messrs. C. Zimmermann and Co., Lond.

Communications, Letters, &c., have been
received from—

A.—Dr. J. Arreglado, Baun; Dr. J. H. Ashworth, Margate; Abbott Alkaloidal Co., Chicago; Mr. W. Armstrong, Buxton; American Animal Therapy Co., Chicago.

B.—Dr. K. C. Bose, Calcutta; Messrs. Burroughs Wellcome and Co., Lond.; Messrs. Blundell and Rigby, Lond.

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D.—Dr. Drake, Tenby.

E.—*Essex Weekly News*, Chelmsford, Manager of; E. L.

F.—Mr. F. H. Foulds, Droitwich; Dr. T. C. Fisher, Torquay; Dr. D. Fenton, Blackburn.

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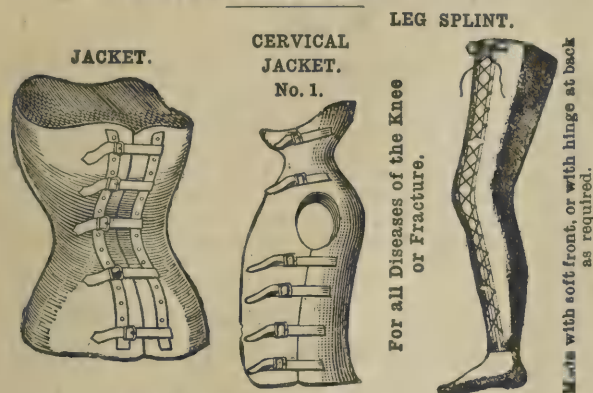
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INSTRUCTIONS FOR MEASUREMENT.

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Circumference at axilla. | Circumference at hips. Length from axilla to great trochanter.

" waist. |

In severe angular cases, circumference over apex of curve, position of same, and contour should be given; in lateral cases, a description of the case. In all cases it should be stated if for male or female.

CERVICAL JACKETS. Same measurements required, and circumference at neck, and length from neck to axilla.

Any part of the jacket can in the process of manufacture be made soft.

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Circumference at top of thigh. | Circumference at calf.

" above knee. | " ankle.

" at knee. | Length splint is required.

" below knee. |

State if for right or left leg. When the foot part is required, also circumference at heel and instep, and length from centre of knee to ground. If the limb is contracted the contour should be given.

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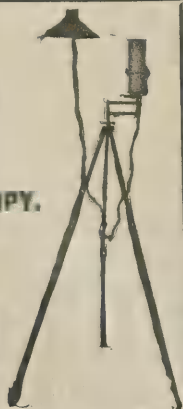
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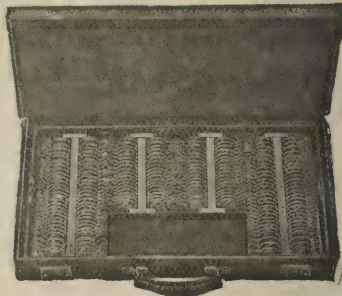


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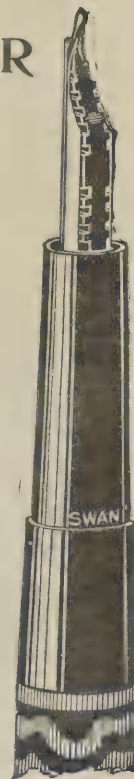
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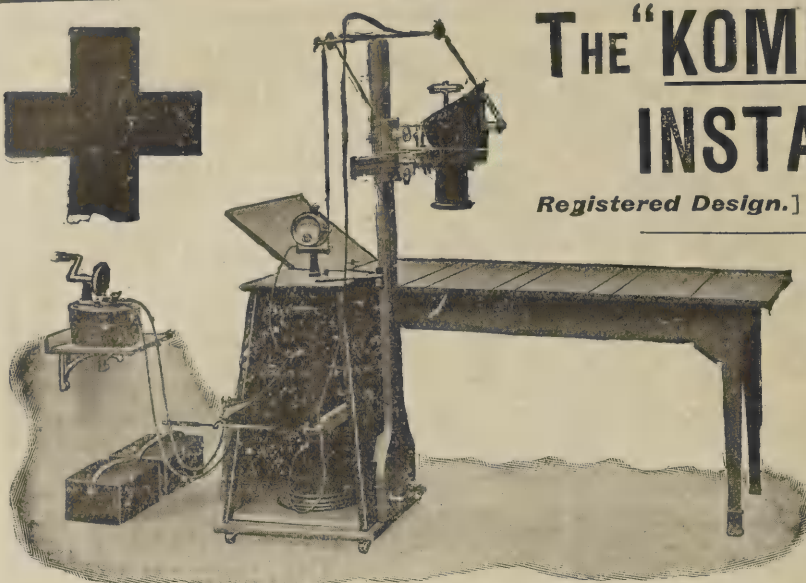
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"Examination showed it to contain no less than 10.3 parts of anhydrous salts in 100 parts by measure, the principal constituent being sodium sulphate; magnesium sulphate, sodium chloride, and calcium sulphate were present in much smaller quantity. The analysis represents the dissolved salts as follows (grams per litre being here converted into grains per fluid ounce):

Sodium sulphate	42.16 grains.	Calcium sulphate	0.85 grains.
Potassium sulphate... ..	0.10 "	Sodium chloride	0.90 "
Magnesium sulphate	1.43 "	Silica, alumina, iron, &c..	0.02 "

In one fluid ounce.

(42.16 grains of anhydrous sodium sulphate represents 95.7 grains of the usual crystallised salt, or 'Glauber's salt'.)

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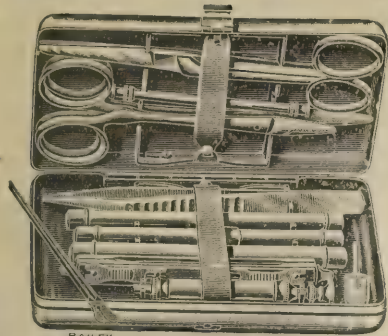
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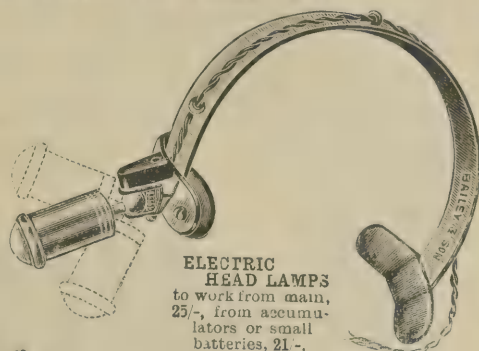
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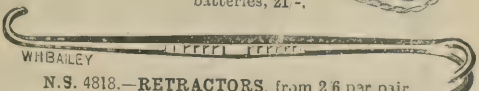
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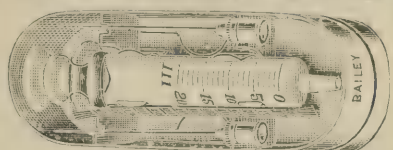
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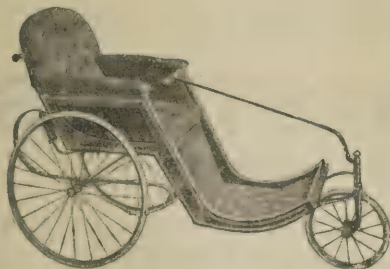
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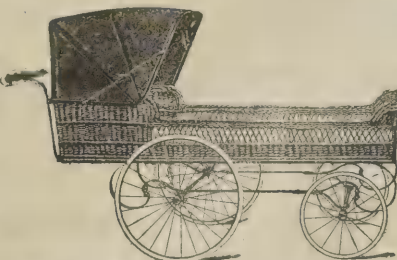
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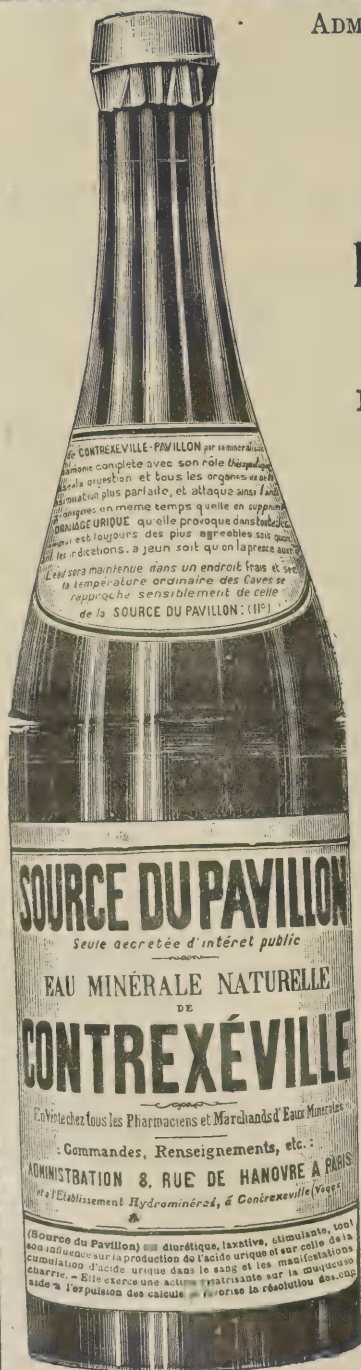
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Results of Immunization with Meningo-Bacterin.—Over 10,000 persons were immunized with Meningo-Bacterin. No cases of cerebrospinal meningitis were reported among those receiving the full immunizing treatment.

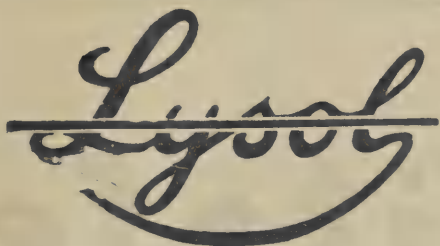
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"Superior to 'Lysol' as far as I have tried it."

**Samples of TOXOL will be delivered free on application to
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*TOXOL is sold in 6½d., 11d., 1s. 7d., and 2s. 9d. bottles at all branches of
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'OMNOPON' Roche, which was originated by Professor Sahli of Berne University in the year 1909, has now won an established place in medicine. It represents the total alkaloids of opium minus its objectionable ingredients. 'Omnopon' is an ideal hypnotic, and possesses the following advantages:

POSITIVE.

'Omnopon' is a light brown powder, soluble in water. Is five times the strength of opium—is perfectly standardised. May be administered conveniently and in exact doses, either internally or as a non-irritating hypodermic solution.

FOR SHOCKLESS SURGERY.

'Omnopon' is largely used as an adjuvant to general inhalation anæsthesia. Prevents post-anæsthetic vomiting.

IN PULMONARY TUBERCULOSIS.

"The purposeless, irritating, dry cough rapidly yielded to gr. $\frac{1}{8}$ th every 4 hours."

(Report of the Mill Road Infirmary, Liverpool.)

NEGATIVE.

'Omnopon' does not produce nausea.

Has no depressant action upon the respiratory centre.

Unlike Morphia, does not give rise to the drug habit.

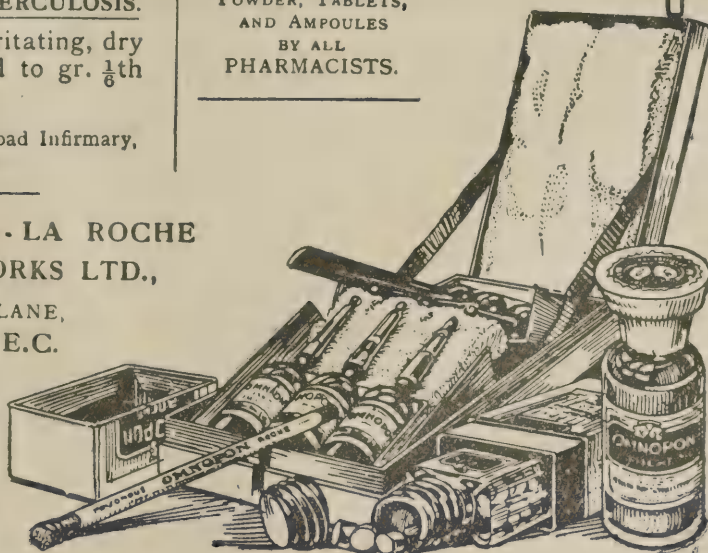
Prescribed in the doses indicated for bronchial symptoms does not constipate.

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2 tablets at each meal 20 days per month.

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GLOBEOL

Globular Protoplasm. Dried Blood Serum.
Colloidal Iron and Manganese.

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8 pills of Globéol per day.

New Scientific
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Communicated to the Academy of
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The Re-education of the Intestine.

(1 to 3 tablets at night on retiring.)

The Re-education or "Jubolisation"
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**CONSTIPATION, Enteritis, Hæmor-
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37 Times More Powerful than Lithia.

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Dissolves and eliminates Uric Acid. Purifies the Kidneys and Frees
the Articulation. Preserves from Arterio-Sclerosis and Obesity.

**RHEUMATISM.
GOUT.
LITHIASIS.**

3 teaspoonfuls per day, each teaspoonful in a
glass of water, taken between meals, 10 days
per month. Acute conditions: 3 dessertspoonfuls
per day. No Contra-indication.

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COMMUNICATIONS.—Academy of Medicine, Paris, Nov. 10th, 1908. Academy of Sciences, Paris, Dec. 14th, 1908.

GOLD MEDAL, FRANCO-BRITISH EXHIBITION, 1908.

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Samples sent free to the Medical Profession on application to Heppell & Co.

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CHOLERA VACCINE

For Prophylaxis only.

Doses No. 1 and No. 2 ... 2/6 each.

Dose No. 1 should be followed in 5 days by Dose 2, which may be repeated after another 5 days if thought necessary.

MENINGOCOCCUS VACCINE

For Prophylaxis and Treatment.

Millions	5	10	25	50	100	250	500
Price	1/6	1/9	2/-	2/6	3/6	5/-	7/6

ANTI-TYPHOID VACCINES

Nos. 1 & 2 for Prophylaxis.

No. 1 contains only the true Bacillus Typhosus, whereas No. 2, which was first introduced by us to the Profession four years ago, contains also B. Paratyphosus A and B and is to be preferred to the former. The first dose of 500 millions is succeeded by one of 1000 millions after 7 or 8 days; if a strong reaction occur after this latter it should be repeated in 8-10 days; if no strong reaction occur 2000 millions should be given as the third dose.

Millions	500	1000	2000
Prices for No. 2	2/6	3/6	5/-

COMBINED VACCINE FOR COLDS

For Prophylaxis and Treatment

was first introduced by us to the Profession eight years ago and is fully established in favour as the best and most reliable preparation on the market.

Millions	25	50	100	250	500
Price	2/6	3/-	4/6	6/8	10/-

TYPHOID VACCINE No. 3

For Treatment.

Millions	25	50	100	250	500
Prices	2/-	2/3	2/6	3/-	4/-

WHOOPING-COUGH VACCINE CO.

For Treatment

is much in favour, and is favourably reported on by one of the largest hospitals in the Kingdom. It contains a due proportion of B. Influenza and Pneumococcus in addition to Bordet's Bacillus—first introduced by us. Initial dose advised for children of 3 years and over, 100 millions.

Millions	25	50	100	250	500
Price	3/-	4/-	5/-	7/6	10/6

RHEUMATIC FEVER VACCINE

For Treatment.

Has been highly approved of by a distinguished Hospital Physician (see Vol. I., No. 1, Fever Vaccine Therapy). Initial dose 10 millions.

Millions	10	25	50	100	250
Price	2/6	3/-	3/6	5/-	7/6

Numerous other Vaccines can also be supplied.

TUBERCULINS

In consequence of the war, Koch's preparations are no longer obtainable, and can be replaced to great advantage by ours, which in the case of old Tuberculin, old Tuberculin "A.F." (Albumose Free) and Bacillary Emulsion are prepared in a similar manner. For "T.R." we advise our own preparation "M." which we claim to be a distinct improvement upon "T.R." Both Human and Bovine preparations are available in 1 c.c. bottles. Human types, prices per 1 c.c. as follows:—

Old Tuberculin, 1/-; Old Tuberculin "A.F.," 2/-; "B.E.," 2/-; "M.," 8/6.

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No Nausea, "Repeating" or Eructations.

Issued in Containers of 24 × 10-minim Capsules.

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Bacteriological and Clinical Diagnosis.

We offer the facilities of this department to Medical Practitioners.

Price List of fees and information as to collecting and forwarding samples will be sent on request.

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(Trade Mark Registered.)

Consist of one dose of sterilised injection in a collapsible tube to the mouth of which the hypodermic needle is affixed. The use of the hypodermic syringe and all preparatory sterilisation is avoided.

Full details on application.

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Algiron in "Drysules"

(Trade Mark Registered.)

For Anaemia and Chlorosis

"Algiron" contains 11% metallic iron. It is readily absorbed. Its action is sedative and slightly laxative; it does not cause constipation. Samples and literature free on application.

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NOW READY.

PRICE 10s. 6d. NET; POST FREE (inland) 10s. 9d.

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TO THE BRITISH PHARMACOPŒIA, 1914.

Published by J. & A. CHURCHILL, 7, Great Marlborough St., London, W.

A systematic record of the alterations and additions to the new B.P.

A veritable VADE-MECUM for the PRESCRIBER.

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SQUIRE'S COMPOUND GLYCEROPHOSPHATE SYRUP.

DOSE—One to two fluid drachms = 3·6 to 7·1 c.c.

The celebrated Compound Syrup of the Glycerophosphates which is now prescribed with such immediate and striking success in NEURASTHENIA and in all nervous affections accompanied by gastric weakness.

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DOSE—One to two fluid drachms = 3·6 to 7·1 c.c.

An invaluable tonic during CONVALESCENCE.

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DOSE—One to two fluid drachms = 3·6 to 7·1 c.c.

SQUIRE'S GLYPHOCAL WITH FORMATES introduces a novelty in the shape of a combined nerve and muscle tonic. It supplements the valuable therapeutic properties of the Glycerophosphates with the muscle-tonic virtues of the Formates.

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PARKE, DAVIS & Co.'s PAGE.

TWO CASES TREATED WITH PHYLACOGEN.

(Reprinted from GUY'S HOSPITAL GAZETTE, January 30th, 1915.)

"The following notes of two cases I have recently treated with Phylacogen may be of interest:—

CASE 1.—C. S., female, aged 51. Unmarried, tailoress by trade.

For some five or six years has had sharp attacks of pain in various joints—apparently typical 'flitting pains'—but says she has never had rheumatic fever. For twelve months wrists and ankles have been continuously affected—walking and movement of wrists causing pain. Much limitation of movement.

In September, 1914, went to an English spa for a course of treatment. General health improved, but the joint condition worse on her return.

On examination.—December 12th, 1914, both wrists show periarticular swelling; right wrist nearly completely fixed; typical fusiform swelling of fingers and ulnar deviation at both wrists. Complains of pain, especially in right wrist. Ankles painful. The patient walks 'like a cat on hot bricks'—very gingerly. Left ankle has movement very limited, foot flat and apparently forced upwards between the two malleoli. Pain in both feet and ankles on movement. Knees and shoulders creaked slightly, and have been painful, but they are affected much less than ankles and wrists.

On December 14th, 1914—1 c.c. Rheumatism Phylacogen injected subcutaneously, and daily injections were given from this date, increasing by 1 c.c. daily.

On the third day, December 17th, improvement was obvious in wrists, both in diminution of swelling and increase in range of movement. Reactions caused were slight until the fifth day, when there was considerable fever with headache and malaise lasting a few hours.

8th day, December 22nd. Practically no reaction after the dose of 9 c.c.

9th day, December 23rd. 5 c.c. given.

December 24th. Patient was allowed to sit up out of bed, and the next day she went out.

December 28th.—There is less swelling round the wrists—which can both be fully flexed passively though with some pain. The fusiform swelling of the fingers is much less marked. Active and passive movements of ankles nearly normal. Gait still abnormal.

Patient is to do simple exercises, such as rising on the toes, flexing and extending wrists, &c., for twenty minutes night and morning, and her sister also applies a very amateur form of massage for ten minutes a day to ankles and wrists.

January 16th, 1915. Five weeks from commencement of treatment.

Full flexion of wrists passively. Two thirds of full activity. Practically no pain. No fusiform swelling of fingers—ulnar deviation less marked. Some swelling of wrists still visible. Gait improved. Can walk some miles without pain. Occasional aching results if she walks far

but only slight and infrequent. Can sew with ease. General health very greatly improved—says 'life seems quite different,' and is told by her friends she appears ten years younger.

CASE 2.—M. P., male, aged 50, clerk. First seen December 19th, 1914. When he had a large broken carbuncle below the angle of his right scapula. Has had several others before, the last being four months ago. Has had several attacks of gout. Urine shows no sugar. The present carbuncle has much induration around it and is very painful. There is a small infected spot on the right shoulder. General condition fair, but some nausea and malaise. Fomentations applied four hourly.

December 22nd, 1914. 1 c.c. Mixed Infection Phylacogen given subcutaneously.

December 23rd. 2 c.c. M. I. P. given.

December 24th. 3 c.c. M. I. P. given. The ulceration has not progressed and the 'core' is looser and cleaner. General condition improved.

December 26th. 3 c.c. M. I. P. given.

December 28th. 4 c.c. M. I. P. given. Marked reaction followed—vomiting and headache lasting a few hours.

December 29th. 5 c.c. M. I. P. given. Marked improvement. Induration almost nil, good discharge from 'core,' healthy granulations. General condition very much improved.

December 30th. 2 c.c. M. I. P. given. The last injection, no discharge at all—ulcer quite clean.

January 3rd and 6th. Fomentations have been used throughout, ulcer healing rapidly, no pus, no induration.

January 13th, 1915, ulcer completely healed, some blueness of skin around but otherwise a healthy scar.

These two cases show well the use of Phylacogen in what are usually very tiresome cases. Without it the first case—one of rheumatoid arthritis—would in all probability have gone from bad to worse. None of the ordinary treatments had been of any avail.

The second case—that of carbuncle—was saved much discomfort, and was able to resume his business within three weeks; indeed, he might have done so in ten days. His last carbuncle had taken over six weeks to cure, and had caused him a great deal of suffering and left him very 'run down.' Both the patients are now following their usual occupations, and both state that they feel better than they have felt for a long time."

Other reports showing the value of Rheumatism Phylacogen in rheumatic conditions, and of Mixed Infection Phylacogen in skin infections and septic conditions generally will be found in our booklet, "Phylacogen Therapy," a copy of which we shall be glad to send to any medical man on request.

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50, Beak Street, Regent Street, London, W.



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Liquid, in vials of 2,000 units, two vials in a case	5/-
Liquid, in vials of 4,000 units, one vial in a case	5/-
Dried, in vials of 4,000 units, one vial in a case	5/-
High potency ~~acid~~ acid, in vials of 4,000 units, in about 4.5 c.c., one vial in a case	10/-
Diagnosis boxes, with two steri- lised glass tubes and a steri- lised swab	1/-

Tetanus Antitoxin.

Liquid, in vials of 10 c.c., three vials in a case	12/-
Ditto, single vials	4/-
(Twelve vials necessary for a curative dose).	
Dried, in vials of 1 gramme (= 10 c.c. liquid Serum)	4/-

Anti-Streptococcic Serum (multivalent).

In vials of 10 c.c., three vials in a case	7/6
Ditto, single vials	2/6
Diagnosis boxes, with sterilised pipette in glass tube	1/-
(Examination of pus free on application to users of this Serum).	

Anti-Meningococcic Serum (multivalent).

In vials of 10 c.c., three vials in a case	7/6
Ditto, single vials	2/6

Anti-Dysentery Serum (multivalent).

In vials of 20 c.c.	5/-
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Normal Serum (Horse).

In vials of 10 c.c.	1/-
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Anti-Plague Serum.

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Plague Prophylactic.

Liquid, in vials of 1 c.c.	1/6
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Coley's Fluid (New).

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Staphylococcus Vaccines.

(a) Made with *Staphylococcus aureus* alone, for furunculosis

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Staphylococcus aureus, *citreus*and *albus*, for acne.(c) Made with *Staphylococcus**albus* alone.

In vials containing 500, 1000 and

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In vials of three colours.

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Micrococcus Catarrhalis Vaccine.

In vials containing 25, 50, 100 and
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In vials containing 50, 100 and
200 million cocci respectively
per vial 2/6 |

Tubercle Bacilli.

For making Emulsion for op-
sonin testing, in vials each 5/- |

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Tuberculin.

In vials of 3 c.c. 1/- |

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Anti-Tetanus Serum

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In vials of 10 c.c. 3/- |

Price—

6d. per tube (1 vaccination);

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Case per cent. Success - - 99.2

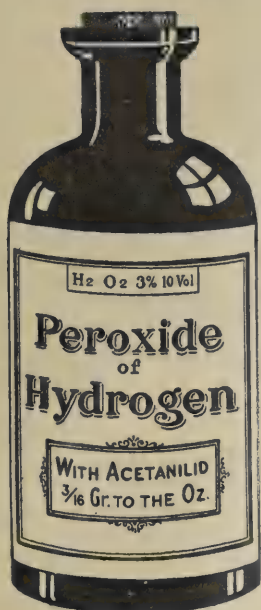
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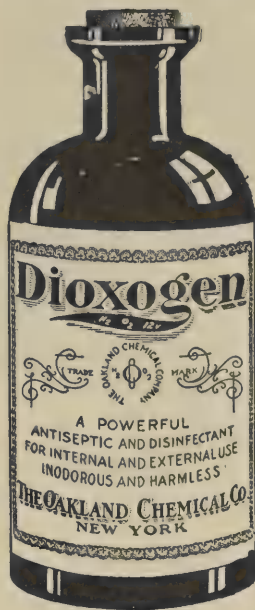
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Ordinary cheap Peroxide contains acetanilid to make it keep. Acetanilid is a questionable drug—so questionable that in the United States the government requires that its presence be noted on the label.

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"Dioxogen"—the PURE peroxide of hydrogen—needs no acetanilid to preserve it. "Dioxogen" never turns rank nor tastes bitter, no matter how old it is. "Dioxogen" is always the same—uniform in strength and quality.

Sample and descriptive pamphlet sent free on request.

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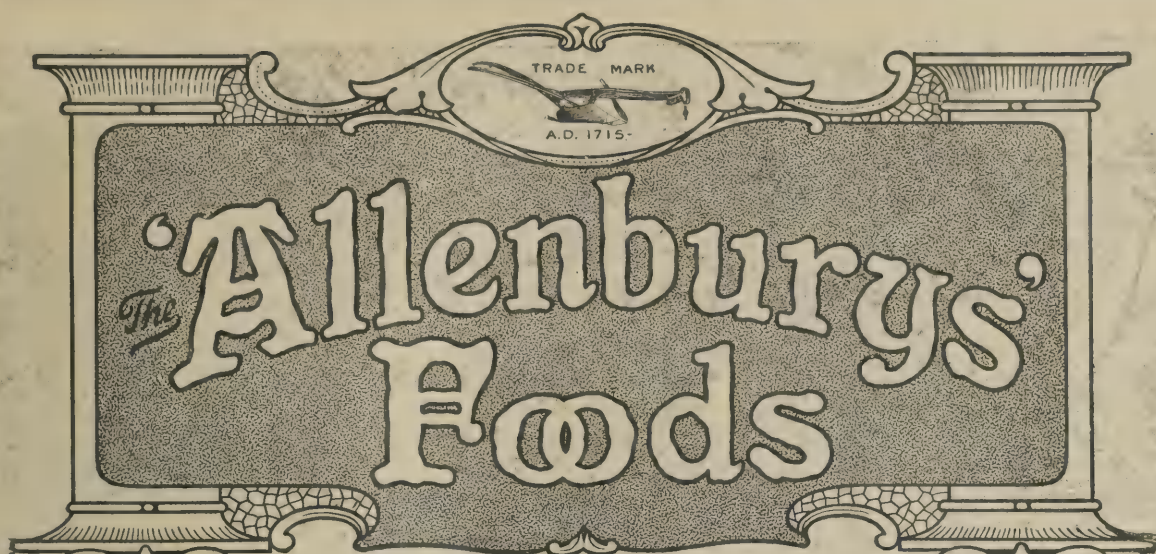


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'TABLOID' Brand THYROID GLAND is supplied to the Medical Profession, in bottles of 100 as follows: gr. 1/10, 6d.; gr. 1/4 and gr. 1/2, 1d.; gr. 1 and 0.05 gm., 11d.; gr. 1-1/2 and 0.1 gm., 1/2; gr. 2-1/2, 1/6; gr. 5 and 0.3 gm., 2/0 per bottle.



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Arab texture of woven silk and linen. The central medallion shows a date-palm separating confronted monsters, enclosed in a geometrical border. Date, circa A.D. 1100-1200.

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"Maltine" with Cod Liver Oil is **Diastasic** (one part converts four of starch) as well as a source of Oil. It is Fluid, Non-Separable, Absolutely Palatable, and will be retained and assimilated when all other forms of cod liver oil are rejected.

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("MALTINE" combined with the active principle of YERBA A.V.A.)

Each Fluid Ounce contains the active principle of 30 grains Yerba Santa.

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A Stimulating and Liquefying Expectorant.

Indicated in Coughs, Colds, Asthma, Bronchitis, and Difficult Expectoration.

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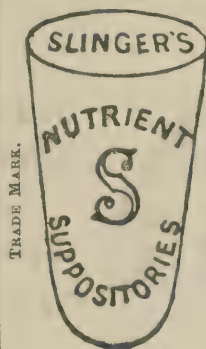
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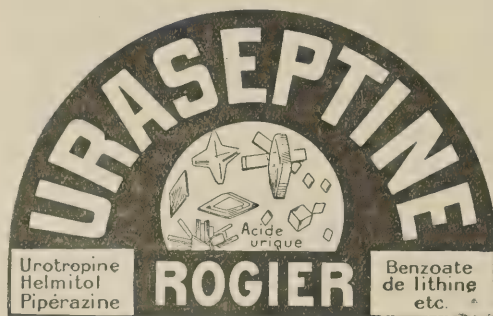
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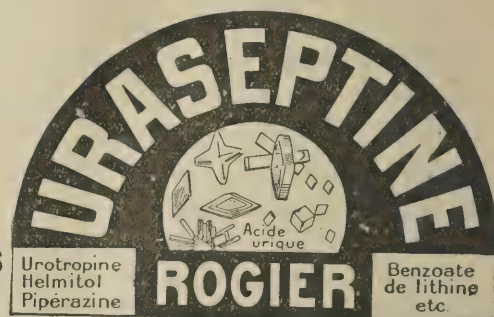
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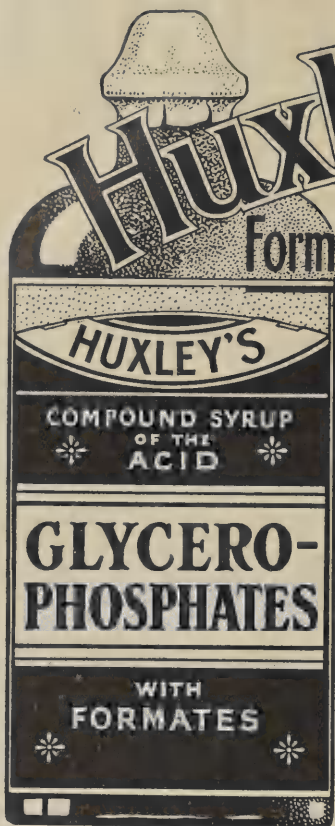
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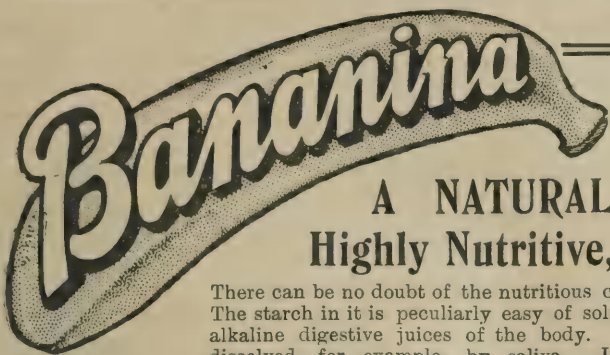
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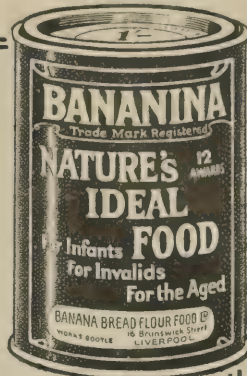
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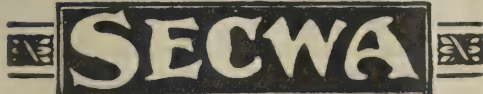
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Further particulars may be obtained from Mr. J. E. PURVIS, Corpus Christi College, Cambridge.

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The WINTER SESSION opens on TUESDAY, OCTOBER 5th, 1915.

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*The SUMMER SESSION, 1915, opens on
20th April and closes 2nd July.*

*The WINTER SESSION, 1915-16, opens on
5th October and closes 15th March.*

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Clinical Instruction on Diseases of Children	John Thomson, M.D., and Staff of Royal Hospital.
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Physiology of the Nervous System	A. Ninlan Bruce, M.D., D.Sc.
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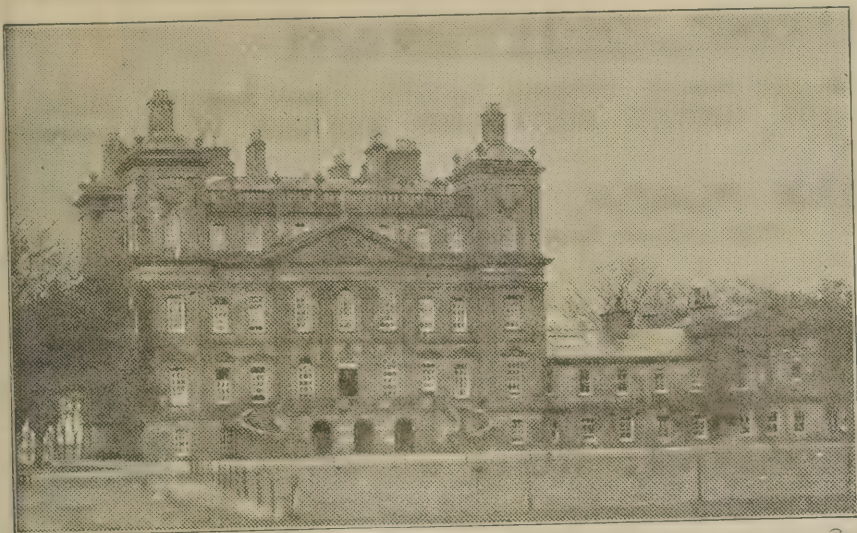
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JOHN POTTER, Secretary.

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Bury Infirmary.—Wanted, a Junior

HOUSE SURGEON, who must have both Medical and Surgical qualifications.

Salary £150 per annum, with board, residence, and washing. Among other duties the person appointed will have charge of the Children's Ward, the Ophthalmic Department, Casualty, and Out-patients' Departments, and the Administration of Anesthetics.

Terms of appointment not exceeding nine months, then eligible for the Senior House Surgeon's post if suitable.

Applications, stating age and nationality, with testimonials, to be sent at once to the Honorary Secretary, Infirmary, Bury, Lancs.

Royal Halifax Infirmary.—Wanted,

SECOND HOUSE SURGEON (male, unmarried), who must be fully qualified and registered. Salary £120 per annum, with residence, board, and washing provided.

Also wanted, a THIRD HOUSE SURGEON (male, unmarried), who must be fully qualified and registered. Salary £100 per annum, with residence, board, and washing provided.

The Infirmary contains 150 beds. There is a large eye, ear, and throat department.

Particulars of the duties, &c., may be obtained from the undersigned, to whom applications, with copies of testimonials, should be sent.

OATES WEBSTER, Secretary.

Victoria Children's Hospital, Park-

street, Hull (77 beds).—Wanted, a HOUSE SURGEON, either sex (Resident), Surgical side. Also ASSISTANT HOUSE SURGEON, either sex (Resident), Medical side. Salary £60 and £50 per annum respectively, with board and laundry.

Applications, with copies of recent testimonials, addressed to the Hon. Secretaries, to be delivered at the Hospital. A photo (to be returned) may be enclosed with the application.

For any further information apply to C. W. STAMFORD, Assistant Secretary.

Victoria Children's Hospital, Park-

street, Hull (77 beds).—Wanted, a HOUSE SURGEON, either sex (Resident). Salary £100 per annum, with board and laundry.

Applications, with copies of recent testimonials, addressed to the Hon. Secretaries, to be delivered at the Hospital. A photo (to be returned) may be enclosed with the application.

For any further information apply to C. W. STAMFORD, Assistant Secretary.

Salisbury (General) Infirmary (120

beds).—Wanted at once, HOUSE SURGEON and ASSISTANT HOUSE SURGEON. Salary £100 and £75 respectively, with apartments, board, lodging, and washing. Candidates must be unmarried, fully qualified, and registered.

Applications from women candidates will be considered.

All applications, with testimonials, to be sent to the undersigned, of whom the rules relative to the duties may be had on application.

The duties will commence from the date of appointment.

Canvassing by or on behalf of the candidates will disqualify.

Dated 1st February, 1915.

S. BUCHANAN SMITH, Secretary.

Royal Gwent Hospital (126 beds).—

Wanted, RESIDENT MEDICAL OFFICER (Ladies eligible), registered Medical and Surgical qualifications. Salary at the rate of—first six months, £100 per annum; second six months, £125 per annum; third six months, £150 per annum, with board, residence, and laundry (no stimulants provided). There are three positions to be occupied during the 18 months. The offices are as follows: Casualty Officer, House Physician, and House Surgeon.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be sent to the undersigned.

J. K. MILLWARD, Secretary-Superintendent.

Royal Gwent Hospital, Newport, Mon.

Royal Salop Infirmary (containing

130 beds).—HOUSE PHYSICIAN wanted, to take up the duties as early as possible. Candidates must be registered under the Medical Acts. Salary at the rate of £110 per annum, with board and apartments.

The duties consist of being responsible to the Medical Staff for the Medical cases, to assist the Pathologist, and to act as Anesthetist. The House Physician is the Junior Resident Officer.

Applications, with three recent testimonials (not less than three), to be sent to the undersigned forthwith.

Lady practitioners are eligible.

ALFRED SUGDEN, Secretary.

Royal Salop Infirmary, Shrewsbury, 8th March, 1915.

The Guest Hospital, Dudley

(105 beds).—Wanted, an ASSISTANT HOUSE SURGEON, qualified. Ladies eligible. Salary £120 per annum, with residence, board, attendance, and washing. Appointment for six months.

Applications, stating age and nationality, and accompanied by not more than six testimonials, to be sent to the Secretary at the Hospital at once.

The Guest Hospital, Dudley

(105 beds).—Wanted, a SENIOR RESIDENT MEDICAL OFFICER. He must be doubly qualified and on the Medical Register. A knowledge of Ophthalmic and X Ray work is desirable. Salary £150 per annum, with board, residence, attendance, and washing.

Applications, stating age and nationality, and accompanied by not more than ten testimonials, to be sent to the Secretary at the Hospital at once.

The Royal Infirmary, Sheffield (326

beds).—HOUSE SURGEON and ASSISTANT HOUSE PHYSICIAN.—Wanted, two Resident Medical Officers, Male or Female, for the above posts. There are nine resident appointments. Salary £100 per annum, with board and residence.

The Board of Management invite immediate application by duly qualified officers for these two posts. Applications, with copies of testimonials, to be addressed to

JNO. W. BARNES, Secretary.

Bootle Borough Hospital (General

Accident).—SENIOR and JUNIOR HOUSE SURGEONS required, either Male or Female. Salaries £150 and £130 respectively, with residence, board, and laundry. Number of beds 84. Special Ophthalmic and Gynaecological Sections, also new X-Ray Apparatus just installed.

Applications, together with testimonials, to be sent to the Secretary, 71, Oriel-road, Bootle, Lancashire.

County Asylum, Prestwich, Man-

chester.—ASSISTANT MEDICAL OFFICER required. Salary commences at £250, increasing to £300 at the end of a year, and upon promotion to £450, together with board, furnished apartments, attendance, and washing. Candidates must be unmarried, not over thirty years of age, and duly registered under the Medical Act.

Applications, stating age, qualifications, &c., to be sent to the Medical Superintendent.

Taunton and Somerset Hospital,

Taunton.—SENIOR HOUSE SURGEON wanted at this Institution. (106 Beds.) Nursing Institute attached. Salary £120 per annum, with board, lodging, and laundry. Candidates must be duly registered as possessing both a Medical and Surgical qualification.

Applications from medical adies will be considered. Applications, stating age, certificates of registration, with copy testimonials, to be sent to the undersigned.

REGINALD A. GOODMAN, Secretary.

University of London.—The Senate

invite applications for the UNIVERSITY CHAIR of PHYSIOLOGY, tenable at St. Bartholomew's Hospital Medical School. The salary will be £600 a year. Applications (twelve copies), together with the names of not more than three references, must be received not later than by first post on Monday, 3rd May, 1915, by the Academic Registrar, University of London, South Kensington, S.W., from whom further particulars may be obtained. Testimonials are not required.

HENRY A. MIERS, Principal

St. Mary's Hospital for Women and

CHILDREN, Plaistow, E.—JUNIOR RESIDENT MEDICAL OFFICER required immediately for three months. Salary at the rate of £90 per annum, with board, residence, and laundry, and an honorarium of £5 on completion of three months' service. The hospital is a general hospital for women and children, has 42 beds and special departments for Diseases of Eye, Ear, Nose and Throat, Diseases of Women, and X-Rays.

Applications, with copies of three recent testimonials, to be sent to N.B.—Ladies are invited to apply.

A. ERNEST WILKES, Secretary

15th March, 1915.

Victoria Hospital, Burnley (80 beds).

—Wanted, a HOUSE SURGEON, to commence duty immediately. Salary £135 per annum, with residence, board, and washing. Candidates (either sex), who must be fully qualified, are requested to send in their applications, with copies of testimonials, as early as possible to

7, Grimshaw-street, Burnley.

F. A. HARGREAVES, Hon. Sec.

(This Hospital is approved by the London University for the purpose of M.B. and M.S. Examinations.)

The Hospital for Sick Children, Great

Ormond-street, London, W.C.—A HOUSE PHYSICIAN is required on the 15th April, 1915.

Candidates are invited to send in their applications, addressed to the Secretary, before twelve o'clock on Tuesday, 6th April, 1915, with not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible hospital appointment.

The appointment is made for six months. Salary £30, washing allowance £2 10s., and board and residence in the Hospital.

Candidates must be unmarried and possess a legal qualification to practise.

They will be required to attend before the Joint Committees at their meeting on Thursday, 8th April, 1915, at 5 P.M. precisely.

Forms of application to be obtained from the Secretary.

By order of the Committee of Management.

March, 1915.

JAMES MCKAY, Acting Secretary

Borough Hospital, Birkenhead.—Wanted, SENIOR HOUSE SURGEON (Lady or Gentleman) or English-speaking Belgian. Salary £120 per annum, with board and laundry. Apply, with testimonials, to the Secretary at the Hospital.

Borough Hospital, Birkenhead.—Wanted, JUNIOR HOUSE SURGEON (Lady or Gentleman) or English-speaking Belgian. Salary £100 per annum, with board and laundry. Apply, with testimonials, to the Secretary at the Hospital.

Wakefield Clayton Hospital.—Wanted, Lady JUNIOR HOUSE SURGEON immediately. Salary £120, all found. 105 beds. Apply to ARTHUR H. BARNES, Secretary.

Ancoats Hospital, Mill-street, Manchester.—Wanted, a HOUSE PHYSICIAN. Salary £30 per annum, with board and residence. Applications are invited from duly qualified men, and should be sent to the undersigned at the Hospital immediately, together with copies of testimonials. HERBERT J. DAFFORNE, Secretary.

West Ham and Eastern General Hospital, Stratford (110 beds).—Wanted, JUNIOR HOUSE SURGEON. Salary at the rate of £100 per annum, with board, residence, and washing. Applications, with copies of recent testimonials, to be sent to the undersigned. A. W. SCRIEYENER, Secretary.

City Mental Hospital, Winson Green, Birmingham.—ASSISTANT MEDICAL OFFICER (either sex) required. Salary £250, with furnished apartments, board, laundry, &c. The appointment offers good facilities for post-graduate study and courses at the local University. Applications to be sent to the Medical Superintendent.

Royal Southern Hospital, Liverpool (210 beds).—Wanted, TWO HOUSE SURGEONS and ONE HOUSE PHYSICIAN (ladies eligible). To commence duty on the 1st April next. Salary at the rate of £60 per annum, with board and residence. The appointments will be for six months, but the elected candidates will be eligible for re-election for three further periods of six months. Applications and copies of testimonials to be sent to the Superintendent and Secretary on or before Monday, 29th March, at 12 noon.

Miller General Hospital for South-East London, Greenwich-road, S.E.—SENIOR HOUSE SURGEON required. The appointment is for six months at a salary of £100 per annum, board, residence, and laundry being provided. Applications, stating age, qualifications, experience, with copies of three recent testimonials, to be sent to the undersigned. Applications from women candidates will be considered. ERNEST MARKS, Assistant Secretary.

Royal Victoria and West Hants Hospital, Bournemouth.—Required, to commence duty immediately, HOUSE SURGEON. Salary £100 per annum and extras, with board, lodging, and washing. The appointment is tenable for six months. Candidates must produce evidence of possessing a double qualification and of being registered according to the provisions of the Medical Act. Applications, with copies of not more than three recent testimonials, to be received by the undersigned. GORDON M. SAUL, Secretary.

The Royal Victoria and West Hants Hospital, Boscombe, Bournemouth (160 beds at this Branch, 120 occupied by Sick and Wounded Soldiers).—TWO HOUSE SURGEONS required to commence duty in April (ladies eligible). Salary £100 and extras, with board, lodging, and washing. The appointment is tenable for six months. Candidates must produce evidence of possessing a double qualification and of being registered according to the provisions of the Medical Act. Applications, with copies of not more than four testimonials, to be received by the undersigned. GORDON M. SAUL, Secretary.

Kent County Asylum, Maidstone.—ASSISTANT MEDICAL OFFICER (Male or Female) wanted. Candidates must be fully qualified, registered, and unmarried. Salary £250 per annum, with full board, furnished quarters, attendance, coal, gas, and washing. Applications, stating qualifications, &c., accompanied by not more than three testimonials, to be sent at once, addressed Medical Superintendent, Asylum, Maidstone. The appointment will be made subject to the provisions of the Asylums Officers' Superannuation Act, 1909. 15th March, 1915. THOMAS W. DADD, Clerk and Steward.

Warrington Infirmary & Dispensary.—The Board of Management of this Voluntary Hospital (which is one of the best equipped in Lancashire and serves a population of 150,000 and at which, consequently, plenty of experience is to be obtained) invite applications for the post of JUNIOR HOUSE SURGEON. Salary at the rate of £120 per annum, rising to £140 after six months' service, with board, apartments, and laundry. Candidates must be registered in Medicine and Surgery. Applications, stating age, with copies of three recent testimonials, should be sent to reach the undersigned as soon as possible. J. H. J. HAMPSON, Secretary.

City of Birmingham.—Lady Assistant MEDICAL OFFICER of HEALTH wanted for Infant Consultation work, &c. Commencing salary £300 per annum, rising to £450 per annum.

Applications, with copies of three recent testimonials, to be made on form which can be obtained from the Medical Officer of Health, the Council House, Birmingham, and to be sent to him on or before April 3rd, endorsed "Lady Medical Officer." Canvassing will disqualify.

The Sheffield Royal Hospital.—Applications are invited from Ladies or Gentlemen for the posts of ASSISTANT HOUSE SURGEON and ASSISTANT HOUSE PHYSICIAN. Candidates must be registered medical practitioners. There are seven resident posts, and the juniors are promoted as vacancies occur.

Applications, with copies of testimonials, should be sent addressed to me as early as possible. The Board Room. JOE W. ROBINSON, Secretary.

Bristol Royal Infirmary.—There will shortly be vacancies for the following:—THREE HOUSE SURGEONS. TWO HOUSE PHYSICIANS. ONE OBSTETRIC and OPTHALMIC HOUSE SURGEON.

The appointments will be made in the first instance until 1st November next, but may be extended upon application for a further six months.

The salaries will be at the rate of £120 per annum, together with board, apartments, and laundry. Candidates must possess registered Medical and Surgical qualifications.

Copies of the by-laws governing these appointments and all particulars may be obtained from the undersigned, to whom applications, accompanied by copy testimonials, should be sent immediately. 9th March, 1915. W. E. BUDGETT, Secretary and House Governor.

City of Norwich.—Assistant School MEDICAL OFFICER (Male or Female).—Wanted for the period of the war a School Medical Inspector. Other things equal, preference will be given to applicants who possess a D.P.H. The Officer appointed will be required to devote his or her whole time to the service of the Education Authority, and to work under the direction and supervision of the S.M.O. (Dr. Patten, M.O.H.). The successful candidate, if possessing a D.P.H., will, if desired, be appointed an Assistant M.O.H. Salary £30 per month. Applications, stating age, qualifications, when at liberty, and experience, marked "A.S.M.O.," and accompanied by not more than three testimonials, to reach the undersigned on or before Wednesday, March 31st, 1915. H. C. PATTEN, M.A. Municipal Buildings, Norwich.

Bristol General Hospital.—The House Committee invite applications for the posts of FIRST HOUSE PHYSICIAN, SECOND HOUSE PHYSICIAN, HOUSE SURGEON, and CASUALTY HOUSE SURGEON, also RESIDENT OBSTETRIC OFFICER.

Salaries at the rate of £150 per annum, with board, residence, &c., provided in the House. The appointments will be for six months from the 1st May next. Local applicants not necessarily preferred. Candidates must be registered under the Medical Acts and produce testimonials of good personal character and ability, and must have had recent experience in the administration of Anesthetics.

Applications, stating age, with copies of testimonials, should be forwarded to the undersigned by Wednesday, April 7th, from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

Woolwich Infirmary.—Assistant MEDICAL OFFICER (Resident, Male).—Required, an Assistant Medical Officer at the Infirmary at Plumstead. Salary £180 per annum, rising £10 annually to £200, with apartments, rations, and washing.

Candidates must not be more than thirty years old and single. They must also be doubly qualified and registered.

All particulars of the appointment can be obtained on personal application.

The salary will be subject to a deduction under the Superannuation Act.

Applications, upon printed forms (which will be supplied at this office), accompanied by copies of three testimonials of recent date, to be sent to me.

Canvassing the Board will disqualify.

By order.

TOM CUTTER, Clerk to the Board. Union Offices, Woolwich, 16th March, 1915.

County Borough of Rotherham.—TUBERCULOSIS OFFICER and ASSISTANT SCHOOL MEDICAL OFFICER.—The Rotherham Corporation are prepared to receive applications from duly qualified Medical Practitioners for the position of Tuberculosis Officer and Assistant School Medical Officer for this Borough.

The person appointed will be required to work under the direction of the Medical Officer of Health.

Salary £350 per annum, with board and residence at the Kimberworth Tuberculosis Hospital, Rotherham.

The appointment to be terminated by three months' notice on either side, and to be subject to such terms and conditions as the Corporation may prescribe.

Applications, marked "Medical Officer," to be forwarded to me, together with copies of three recent testimonials, on or before the 31st March, 1915.

Canvassing, either directly or indirectly, will be considered a disqualification.

By order.

CHAS. L. DES FORGES, Town Clerk.

The University of Sheffield.—Appoint-
ment of PROFESSOR of PATHOLOGY.—The Council of the University of Sheffield invites applications for the JOSEPH HUNTER CHAIR of PATHOLOGY, to be sent in not later than the 9th April, 1915. Particulars may be obtained from

W. M. GIBBONS, Registrar.

Kent County Asylum, Chatham,
near Canterbury.—JUNIOR ASSISTANT (THIRD) MEDICAL OFFICER (male) required. Salary commencing at £250, with furnished quarters and attendance, coal, gas, milk, garden produce, washing, and board. The appointment is subject to the provisions of the Asylums Officers Superannuation Act. Applications, stating qualifications, &c., with copies of three recent testimonials, to Medical Superintendent.

North Ormesby Hospital, Middles-
brough (114 beds).—HOUSE SURGEON wanted, to commence duties about May 1st. Salary £150 per annum, with board, washing, and attendance. Candidates, who must be fully qualified, are requested to send their applications, stating age, experience, and qualifications, with three testimonials, to the undersigned.

ARTHUR WILLIAMS, Secretary.

Derbyshire Hospital for Sick Children
(40 beds).—RESIDENT MEDICAL OFFICER (Lady) wanted. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Salary £200 per annum. Applications, with three testimonials, one relating to anaesthetics, to be sent (immediately) to the undersigned.

25, St. Mary's Gate, Derby.

ARTHUR N. WHISTON, Secretary.

Assistant Resident Medical Officer.—

The Guardians of the Poor of the PARISH of NEWCASTLE-UPON-TYNE require the services of an Assistant Resident Medical Officer (Male) at their Poor-law Institution and Infirmary, Westgate-road. Salary at the rate of £250 per annum (rising to £300 per annum at the expiration of one year's service), with furnished apartments, rations, and washing.

Candidates must be unmarried; they must also be doubly qualified and registered. A list of the duties of the office will be supplied by the undersigned.

Applications, accompanied by three testimonials of recent date, must be sent so as to reach me not later than 12 noon on Wednesday, the 31st March, 1915. Selected candidates will have notice to attend on the day of election. Third-class railway fares and reasonable expenses will be allowed. Canvassing the Guardians, directly or indirectly, will disqualify. The appointment will be made subject to the approval of the Local Government Board.

By order.

GLADSTONE WALKER, Clerk to the Guardians.

Poor-law Offices, 127, Pilgrim-street, Newcastle-on-Tyne,
22nd March, 1915.

Worcestershire County Council.—

EDUCATION COMMITTEE.—MEDICAL INSPECTION OF SCHOOL CHILDREN.—Applications are invited for the post of one of the Assistant School Medical Officers of the Worcestershire County Council, to carry out the work of Medical Inspection of Elementary School Children, and to perform such other duties in connexion with the work of medical inspection carried on by the County Council as may be prescribed from time to time.

Applicants (either Male or Female) must be fully qualified, and preference will be given to applicants who (a) are adequately trained in State medicine, or (b) have had special opportunities for the study of the diseases of children.

The person appointed will be required to devote his (or her) whole time to the office, and to reside in such place as the County Council may approve.

The salary will be £350 per annum, inclusive of travelling and personal expenses.

Applications, on forms to be obtained from the undersigned, accompanied by not more than three recent testimonials, must be received on or before 12 noon on the 29th March, 1915, addressed to the School Medical Officer, Shirehall, Worcester, and endorsed "Assistant School Medical Officer."

Canvassing disqualifies, and names of members of Education Committee will not be supplied.

C. H. BIRD, Clerk to the County Council.

Shirehall, Worcester, 9th March, 1915.

[X 118.]

Worcestershire County Council.—

Appointment of ASSISTANT TUBERCULOSIS OFFICER.—Applications are invited for the post of Assistant Tuberculosis Officer for the Administrative County of Worcester. Applicants (either Male or Female) must be registered Medical Practitioners of suitable qualifications and experience, and not less than twenty-five years of age. Preference will be given to those who have held House appointments for at least six months in a General Hospital, in addition to a similar period of attendance at a special Institution for the treatment of Tuberculosis.

The person appointed will be required to devote his (or her) whole time to the office, and to reside in such place as the County Tuberculosis Committee may approve.

The salary will be three hundred and fifty pounds (£350) per annum, exclusive of travelling and personal expenses.

Applications, on forms to be obtained from the undersigned, accompanied by not more than three recent testimonials, must be received by 12 noon on the 29th March, 1915, addressed to the County Medical Officer, Shirehall, Worcester, and endorsed "Assistant Tuberculosis Officer."

Canvassing disqualifies, and neither the names of members of the County Council nor of the Committee will be supplied.

C. H. BIRD, Clerk of the County Council.

Shirehall, Worcester, 8th March, 1915.

[X 116.]

Hulme Dispensary, Dale-street,
Stretford-road, Manchester.—Wanted, a HOUSE SURGEON (ladies eligible), duly registered and fully qualified. Salary £250 per annum, with apartments, attendance, coal, and gas. Time allowed for study.

Applications, with testimonials, at once to Honorary Medical Secretary.

County Borough of Northampton

EDUCATION COMMITTEE.—DENTAL SURGEON.—Applications are invited from duly qualified Dentists for the appointment of Whole-time School Dentist, to inspect and treat the teeth of Public Elementary School Children.

The salary will be £250 per annum, rising by yearly increments of £25 to £300 per annum.

Applications must be made on a form (which gives particulars of the duties) to be obtained from the Secretary, and must be received by him on or before the 19th April next.

Applicants are requested not to canvass, as this will disqualify.

STEWART BEATTIE, Secretary to the Education Committee.

Borough Education Offices, 4, St. Giles-street, Northampton,
23rd March, 1915.

The Victoria Hospital for Children,

Tite-street, Chelsea, S.W. (104 beds, 30 of which are allotted to invalid soldiers). Out-patient attendances 64,000.—The Committee of Management are prepared to receive applications for the office of HOUSE SURGEON which will become vacant on April 1st. Open to qualified men or women.

Candidates for the post must hold Medical and Surgical qualifications and be registered under the Medical Act. The successful candidate will be elected for six months, with an honorarium of £100, and will be provided with board and lodging in the Hospital.

Candidates must send in their applications, with testimonials, to the Secretary at the Hospital as soon as possible, and are expected to call on the members of the Medical Staff.

By order.

H. G. EVERED, Secretary.

The Victoria Hospital for Children,

Tite-street, Chelsea, S.W. (104 beds, 30 of which are allotted to invalid soldiers). Out-patient attendances 64,000.—The Committee of Management are prepared to receive applications for the office of HOUSE PHYSICIAN which is now vacant. Open to qualified men or women.

Candidates for the post must hold Medical and Surgical qualifications and be registered under the Medical Act. The successful candidate will be elected for six months, with an honorarium of £100, and will be provided with board and lodging in the Hospital.

Candidates must send in their applications, with testimonials, to the Secretary at the Hospital as soon as possible, and are expected to call on the members of the Medical Staff.

By order.

H. G. EVERED, Secretary.

Breconshire County Council.—

Appointment of Temporary ASSISTANT SCHOOL MEDICAL OFFICER.—The above Council invite applications for the post of Temporary Assistant School Medical Officer (Male or Female), during the absence of the County Medical Officer on active service, to carry out the work of Medical Inspection of Elementary School Children.

Applicants must be fully qualified, and the successful candidate will be required to devote his or her whole time to the office, and reside in or near Brecon.

The salary will be at the rate of £300 per annum, with reasonable travelling expenses.

Applications, accompanied by three recent testimonials, must be sent to the undersigned on or before April 16th, 1915.

A. LEONARD,

Secretary to the Breconshire Education Committee.
Education Office, County Hall, Brecon, March 22nd, 1915.

Hampshire County Council.—Assist-

ANT COUNTY MEDICAL OFFICER OF HEALTH.—The Hampshire County Council propose to appoint an Assistant County Medical Officer of Health on the permanent staff, and invite applications from fully qualified medical men. Possession of a Diploma or Degree in Public Health will be considered an advantage. Salary £300, rising to £400 by annual instalments of £25, in addition to travelling allowances.

Applications, with copies of not more than three testimonials, upon a form which, with the conditions of appointment, may be obtained from the undersigned, must be delivered at the Castle, Winchester, on or before Thursday, the 8th April, 1915.

The canvassing of members of the County Council or any Committee, personally or otherwise, is strictly prohibited and will disqualify.

H. BARBER, Clerk of the County Council.

The Castle, Winchester, 22nd March, 1915.

West Riding of Yorkshire.—Appoint-

ment of Temporary DISPENSARY TUBERCULOSIS OFFICER.—The County Council of the West Riding of Yorkshire invite applications for the appointment of a Temporary Dispensary Tuberculosis Officer, of either sex, to replace an officer now on Military Service. The person appointed will be required to reside in Huddersfield, to assist the County Medical Officer in the conduct of one of the Tuberculosis Dispensaries, and generally in relation to the treatment of persons suffering from tuberculosis.

The salary will be £400 per annum.

Further particulars and form of application may be had from the undersigned, by whom all applications, with copies of not more than three testimonials, must be received under cover, marked "Temporary Dispensary Tuberculosis Officer," not later than the 12th April, 1915.

FRANCIS ALVEY DARWIN, Clerk to the County Council.

County Hall, Wakefield, 20th March, 1915.

Bradford Children's Hospital.—
HOUSE SURGEON wanted at once (Lady or Gentleman),
doubly qualified. Salary £120, with board, residence, and laundry.
Applications, stating age, with testimonials, to
C. V. WOODCOCK, Secretary.

Wanted for the Chesterfield and
NORTH DERBYSHIRE HOSPITAL (120 Surgical and
Medical beds) a gentleman to fill the office of SECOND HOUSE
SURGEON, who shall have charge of all the Medical beds. He must be
fully qualified and registered. Salary £150 per annum, with board,
apartments, and laundry. The office may be terminated by one
month's notice on either side.
Applications, with copies of testimonials, must be sent to the
Secretary.
23rd March, 1915. G. SUNNICK, Secretary.

Leeds General Infirmary (520 beds).
—Wanted, OPHTHALMIC HOUSE SURGEON. Salary £50
per annum, with board, residence, and laundry. Six months' appoint-
ment.
RESIDENT MEDICAL OFFICER at the IDA and ROBERT
ARTHINGTON HOSPITALS (Male or Female). Salary £60 per annum,
with board, residence, and laundry. Six months' appointment.
Candidates must be legally qualified and registered.
Applications, with testimonials, should be addressed to the Infirmary.
FRED. J. BRAE, General Manager.

Birmingham General Dispensary.—
RESIDENT MEDICAL OFFICER, for one of the seven branches
of this Institution, required at once. Must be unmarried, registered,
and possess Medical and Surgical qualifications. Commencing salary
£250 per annum, with furnished apartments, fire, lights, and attend-
ance. No Midwifery cases. LADIES MAY APPLY.
Applications, together with copies of three recent testimonials and
registration certificate, should be forwarded to the undersigned (from
whom any further particulars can be obtained) at the earliest possible
date.
32, Union-street. ERNEST W. FORREST, Secretary.

Bradford Education Committee.—
Applications are invited for the post of ASSISTANT SCHOOL
MEDICAL OFFICER (Man or Woman). Preference will be given to
applicants with experience in Diseases of Children who possess the
Diploma in Public Health. Salary £350 per annum, rising to £400 by
two biennial increments of £25.
A form of application and statement of the conditions and duties of
the office may be obtained from, and should be returned to, the Director
of Education on or before 7th April, 1915.
Education Office, Town Hall, Bradford. By order.

Manchester Children's Hospital (Out-
patients' Department, Gartside-street, Manchester).—Wanted
for the Out-patients' Department, an ASSISTANT MEDICAL
OFFICER (Non-resident, Lady or Gentleman), who must be doubly
qualified and on the Medical Register. Salary £100 per annum. The
appointment is for six months. Particulars of duties can be obtained
from the Secretary.
Applications, stating age and accompanied by copies of testimonials,
to be sent to the undersigned at the Hospital, Pendlebury, Manchester,
at once. Duties to commence April 22nd, 1915.
March 22nd, 1915. W. M. HUMPHRY, Secretary.

Manchester Children's Hospital,
Pendlebury, near Manchester (188 beds).—Wanted, a RESIDENT
MEDICAL OFFICER (Lady or Gentleman), who will be appointed for
six months. Candidates must be unmarried, doubly qualified and duly
registered. Salary at the rate of £100 per annum. Applications,
stating age and accompanied by copies of testimonials, to be sent to
the undersigned at the Hospital, Pendlebury, near Manchester, on or
before April 3rd. Duties to commence 1st June, 1915.
March 22nd, 1915. W. M. HUMPHRY, Secretary.

Westmorland Consumption Sana-
TORIUM AND HOME, Meathop, Grange-over-Sands (135
beds).—Applications are invited for the post of SECOND ASSISTANT
to the MEDICAL SUPERINTENDENT (who is also the Tuberculosis
Officer for the County of Westmorland). Salary £200 per annum, with
board and laundry. The appointment is suitable for a newly qualified
man who desires to gain Sanatorium experience in order to qualify for
the Tuberculosis Service.
Applications, stating age and when free to commence duties,
together with copies of three recent testimonials, to be sent to me as
soon as possible.
C. F. WALKER, M.D., B.S. Lond., D.P.H. Manch.,
Medical Superintendent.

The Hospital for Women, Soho-
square, W.—A vacancy being about to occur in the office of
RESIDENT MEDICAL OFFICER, applications are invited for the
post. The appointment is open to either Ladies or Gentlemen. Can-
didates must possess recognised Medical and Surgical qualifications. The
appointment is for six months, from 1st April to 30th September,
1915. Salary at the rate of £80 per annum, which sum includes Insur-
ance Act fees for residential staff. Applications must reach the under-
signed on or before Wednesday, 31st March next, accompanied by eight
sets of three or more recent testimonials. Candidates are desired to
call on the members of the Honorary Medical Staff. Regulations
attached to the post will be forwarded on application to
ALFRED HAYWARD, Secretary.

Royal Waterloo Hospital for Children
and WOMEN, S.E.—There will be vacancies for a SENIOR and
JUNIOR RESIDENT MEDICAL OFFICERS on March 31st. Salaries
at the rate of £150 and £100 respectively, with board and washing.
Applications, with copies of three recent testimonials, should be sent to
the Secretary at the Hospital.

Weston - super - Mare Hospital.—
Wanted immediately, a duly qualified HOUSE SURGEON
(Ladies eligible). Salary £120 per annum, with board, residence, and
laundry.
Applications, with testimonials, to be sent to the Honorary Secretary
by April 6th.

Kensington Dispensary and Children's
HOSPITAL (11 cots).—RESIDENT MEDICAL OFFICER.—
Applications are invited for the post of Resident Medical Officer at this
Institution. Salary £100 per annum, with board, furnished apartments,
and washing. Ample time for reading. Candidates must be fully
qualified and registered. Ladies eligible.
Copies of three testimonials to be forwarded not later than 6th April,
1915, to the Honorary Secretary, 49, Church-street, Kensington, W.

Welsh Hospital. — Two Medical
OFFICERS are required for the above hospital, one of whom
must have had experience of Pathological Work. The Hospital is at
present situated at Netley, and is liable to be called upon to serve
abroad later.
Salary at the rate of £400 a year, contract of service for six months,
with one month's gratuity at completion of satisfactory service.
Uniform grant given, and quarters and rations provided. The candi-
dates appointed will receive a temporary commission in the R.A.M.C.
Applications, and copies of testimonials, must reach the Hon. Sec.,
Welsh Hospital, 47, Principality Buildings, Cardiff, on or before
April 7th. Duties commence April 26th.

Hamlet of Mile End Old Town.—
The Guardians of the Poor of the Hamlet of Mile End Old Town
are prepared to receive applications from gentlemen desirous of being
appointed to either of the following offices, for a period of twelve months
at the Infirmary:—
TWO ASSISTANT MEDICAL OFFICERS. Salary £275 per annum,
with board, lodging, and washing.
Applicants must be registered medical practitioners.
The duties may be ascertained upon application to the Medical
Superintendent, who may be interviewed any day (except Saturdays)
before 1 o'clock P.M., and from whom also forms of application may be
obtained, which must be returned to the undersigned not later than the
first post on Monday, the 5th April, 1915.
The appointments will be made subject to the consent of the Local
Government Board and to the provisions of the Poor-law Officers'
Superannuation Act, 1896.
Canvassing the Guardians is prohibited and will be deemed a dis-
qualification.
By order.
BENJAMIN CATMUR, Clerk to the Guardians.
Guardians' Offices, Bancroft-road, Mile End, E., 18th March, 1915.

Lancashire County Council.—Elswick
SANATORIUM, near Kirkham.—Appointment of MEDICAL
SUPERINTENDENT.—The Lancashire County Council are prepared
to receive applications for the post of Medical Superintendent for the
above Institution at the salary of £300 per annum, rising to £350 by
annual increments of £25, together with board, furnished apartments,
and washing.
Applicants must be registered medical practitioners, between twenty-
seven and forty-five years of age, and must have held house appoint-
ments for at least six months in a General Hospital, and have had
special practical experience in the administrative work of a Tuberculosis
Sanatorium and the treatment of Tuberculosis. Special practical expe-
rience in Bacteriology and in the use of Tuberculin will be deemed
important qualifications for the post.
Applications, on forms to be provided, accompanied by copies of three
recent testimonials, to be delivered to the undersigned not later than
the first post on the 15th April, 1915.
Form of application, terms of appointment, and list of duties can be
obtained from the undersigned.
All letters must be marked on the outside "Appointment of Medical
Superintendent."
HARCOURT E. CLARE, Clerk of the County Council.
County Offices, Preston.

Kent County Council.—Appointment
of TUBERCULOSIS OFFICER.—Applications are invited by
the Kent County Council for the position of Tuberculosis Officer.
Candidates must be registered medical practitioners and must have
held a house appointment for at least six months in a General Hospital,
and have had special practical experience in the Diagnosis and Treat-
ment of Tuberculosis.
The candidate appointed will be attached to the County Health
Department, and will be required to work under the direction of the
County Medical Officer, and to devote the whole of his time to the
duties of the office. He will also be required to reside in such part of
the County as may be directed.
The appointment will be subject to three months' notice on
either side.
The salary to be paid will be at the rate of £500 per annum, together
with subsistence and travelling expenses.
Applications, stating age, and earliest date upon which duties could
be commenced, and accompanied by three recent testimonials, must be
received by the undersigned not later than Wednesday, April 7th, 1915.
The appointment is not a temporary one and no forms of application
are issued.
(Signed) ALFRED GREENWOOD, M.D., B.Sc., D.P.H.,
County Medical Officer and Chief Tuberculosis Officer
Sessions House, Maidstone, 24th March, 1915.

County Borough of Croydon.—

CROYDON BOROUGH HOSPITAL.—Notice is hereby given that the Council are prepared to receive applications for the appointment of **ASSISTANT RESIDENT MEDICAL OFFICER** at the Croydon Borough Hospital (170 beds) for Infectious Diseases (including tuberculosis). Preference will be given to candidates who have held previous Hospital appointments.

The salary will be £150 per annum, with board, residence, and laundry at the Hospital, subject to an annual percentage deduction in accordance with the provisions of the Superannuation Scheme adopted by the Council under the powers of the Croydon Corporation Act, 1893.

Applications, stating qualifications and experience, to be sent to me with copies (not originals) of not more than three testimonials of recent date.

JOHN M. NEWNHAM, Town Clerk.

The Town Hall, Croydon, 24th March, 1915.

Salford Royal Hospital (208 beds).—

The following vacancies will occur in the Resident Medical Staff (Male) on the 1st April next:—

JUNIOR HOUSE SURGEON. Salary at the rate of £100 per annum. **CASUALTY HOUSE SURGEON.** Salary at the rate of £100 per annum.

With a bonus in each case of £5 per month during the continuance of the war.

The appointments are for six months, with board and residence. Candidates must be registered under the Medical Act.

Applications, stating age, together with copies of testimonials and certificates of registration, to be addressed to the undersigned without delay.

By order of the Board.

GEORGE RUDDLE,

Secretary and Superintendent.

March 24th, 1915.

Bradford Poor-law Union.—Assistant

RESIDENT MEDICAL OFFICER (Lady or Gentleman).—Wanted, an Assistant Resident Medical Officer for the St. Luke's Hospital and Union House of the above Union.

Salary £200, with rations, apartments, and washing.

The appointment will be for one year. Candidates must be duly qualified, unmarried, and the person appointed must act under the direction of the Medical Officer and the regulations of the Guardians.

The St. Luke's Hospital is divided into Medical and Surgical Wards, and facilities are provided for Pathological and Bacteriological work.

Applications, giving age and full particulars of experience and qualifications, accompanied by testimonials of character and ability, to be sent to me by March 31st.

By order.

GEORGE M. CROWTHER, Clerk to the Guardians.

Union Offices, 22, Manor-row, Bradford, 24th March, 1915.

West Ham Union.—The Guardians

invite applications for the following appointments:—

At their Sick Home, 95, Forest-lane, Forest Gate, E.—**DEPUTY MEDICAL OFFICER**, at a salary of £250 per annum, with the usual residential allowances. Further particulars may be obtained upon application to the Medical Officer at the Home.

At their Workhouse, Union-road, Leytonstone, N.E.—**LADY ASSISTANT MEDICAL OFFICER**, at a salary of £140 per annum, rising by annual increments of £10 to a maximum of £160 per annum, with the usual residential allowances. Further particulars may be obtained upon application to the Medical Officer at the Workhouse.

The successful candidates will be required, should occasion arise, to act at any other Institution under the control of the Board.

Forms, upon which application must be made, can be obtained at my office, or will be forwarded upon receipt of a stamped, addressed foolscap envelope, and must be returned not later than 10 A.M. on Thursday, the 1st proximo.

Canvassing the Guardians, either directly or indirectly, is prohibited and will disqualify.

By order of the Board.

THOMAS SMITH, Clerk

Board Room, Union-road, Leytonstone, N.E., 23rd March, 1915.

Croydon Union.—Assistant Medical

SUPERINTENDENT of the INFIRMARY and ASSISTANT MEDICAL OFFICER of the WORKHOUSE and CHILDREN'S HOMES.—The Guardians of the above-named Union invite applications for the appointment of Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Workhouse and Children's Homes.

Candidates for this appointment must be not under twenty-five years of age, and be qualified by law to practise both Medicine and Surgery in England and Wales, such qualification being established by the production to the Guardians of a diploma, certificate of a degree, licence, or other instrument granted or issued by a competent legal authority in Great Britain or Ireland, testifying to the medical and surgical qualifications of the candidate.

Candidates must have had experience in Institution work and Operative Surgery.

Salary £225 per annum, rising at the end of the first year to £250 per annum, with the usual residential allowances at the Infirmary, Mayday-road, Thornton Heath.

Forms of application, with particulars of duties, can be obtained of the undersigned.

Applications, in candidates' own handwriting, must reach me not later than the first post on Tuesday, the 6th April next.

Selected candidates will have notice to attend on the 13th April.

Personally canvassing the Guardians will be deemed a disqualification.

By order.

HARRY LIST, Clerk to the Guardians.

Union Offices, Mayday-road, Thornton Heath, Surrey,

24th March, 1915.

Paddington Green Children's Hospital,

London, W.—There will be a vacancy for a **HOUSE PHYSICIAN**

(Lady) on 7th May. The appointment is for six months.

Salary at the rate of £80 a year, with board, residence, and washing.

Applications, with copy testimonials, to be sent in to the Secretary

by or on 23rd April. W. H. FEAROE, Secretary.

The Mental Hospital, Canterbury.—

An **ASSISTANT MEDICAL OFFICER (Male)** required, unmarried. Salary to commence at £250 per annum, with board, lodging, washing, and attendance, subject to deductions under the Asylums Officers' Superannuation Act, 1909. Apply, with copies of three recent testimonials, to the Medical Superintendent.

Tuberculosis Dispensary Department

of the **ROYAL HOSPITAL for DISEASES of the CHEST**, City-road, E.C.—Wanted, **TUBERCULOSIS OFFICER** (non-resident) to take charge of this Department. Commencing salary £420 per annum. Applications, stating experience and testimonials, to be sent to the Secretary by Wednesday, 7th April, 1915. By order.

A. T. MAYS, Secretary.

The Royal Hospital for Diseases of

the **CHEST**, City-road, London, E.C.—The post of **HOUSE PHYSICIAN** at this Hospital will shortly be vacant. The appointment is for six months. Salary at the rate of £75 per annum, with board, lodging, and washing. Applications, with copies of testimonials, to be sent to the Secretary not later than April 7th, 1915.

A. T. MAYS, Secretary to the Council.

West End Hospital for Diseases of

the **NERVOUS SYSTEM, PARALYSIS, and EPILEPSY**, 73, Welbeck-street, W.—Applications are invited for the post of **HONORARY REGISTRAR**, and should be sent, together with copies of three recent testimonials, before 10th April to the undersigned, from whom particulars may be obtained.

D. D. KIRKALDY, Secretary.

The Queen's Hospital for Children,

Hackney-road, Bethnal Green, E.—**HOUSE PHYSICIAN** and **HOUSE SURGEON** required. Six months' appointment. Salary £100, with board, residence, and washing. Candidates (Men or Women) must possess a Medical and Surgical qualification.

Applications, with copies of testimonials, should be sent as soon as possible to T. GLENTON-KERR, Secretary.

Telephone: Dalston 305. March 22nd, 1915.

Manchester Hospital for Consumption

and **DISEASES of the THROAT and CHEST.**—Applications are invited for the post of **ASSISTANT MEDICAL OFFICER and PATHOLOGIST**.

Duties: Attendance at Hardman-street Out-patient Department three mornings a week, Examination of Sputum, &c.

Candidates must be on the Medical Register. Salary £60 per annum.

Applications, stating age, with copies of recent testimonials, to be sent in not later than April 10th to

Hardman-street, Manchester.

C. W. HUNT, Secretary.

The Middlesex Hospital, W.

Applications are invited for the following appointments:—

TWO HOUSE PHYSICIANS.

Candidates must be at least twenty-one years of age, and must be duly qualified, registered medical practitioners. Board and residence is provided.

THE APPOINTMENTS are open to WOMEN.

Further particulars may be obtained on application to the

SECRETARY-SUPERINTENDENT.

The Middlesex Hospital, W., March 24th, 1915.

The London Lock Hospital, Harrow-

road, London, W. (145 beds).—The Board of Management invite applications for the appointment of **HOUSE SURGEON** (Male or Female) at the Female Hospital, Harrow-road. Duties to commence May 1st, 1915.

Salary at the rate of £130 per annum, with furnished rooms, full board, and washing.

Candidates, who must be doubly qualified and duly registered, should send in their applications, accompanied by copies of three recent testimonials, to the undersigned (on or before April 6th), from whom further particulars can be obtained. The appointment is for six months.

By order of the Board.

March 25th, 1915.

H. J. EASON, Secretary.

Willesden Urban District Council.—

HEALTH DEPARTMENT.—Applications are required from fully qualified Medical Men or Women to fill the following temporary vacancies:—

ASSISTANT MEDICAL OFFICER OF HEALTH and ASSISTANT SCHOOL MEDICAL OFFICER at £8 8s. per week.

RESIDENT MEDICAL OFFICER at the INFECTIOUS DISEASES HOSPITAL at £6 6s. per week, with board and lodging.

Candidates should apply at once in writing, stating their qualifications, experience, and for which post or posts they desire to be considered to.

Dr. BUCHAN, Medical Officer of Health

Municipal Offices, Dyne-road, Kilburn, N.W.

St. Mary Islington Infirmary,
Highgate Hill, N.—Wanted, a JUNIOR ASSISTANT MEDICAL OFFICER of either sex. Salary at the rate of £140, and all found. Apply for particulars to the Medical Superintendent at the Infirmary.

Royal National Orthopaedic Hospital,
234, Great Portland-street, W.—RESIDENT HOUSE SURGEON. £100, all found. Candidates must be doubly qualified. 130 military beds, 55 orthopaedic beds. Apply to the Secretary not later than March 30th.

North Lonsdale Hospital, Barrow-in-Furness.—Wanted at once, MALE HOUSE SURGEON. Salary £150 per annum, with residence, board, and laundry. Applications, accompanied by not more than three recent testimonials, to be sent to the Secretary.

Whitehaven and West Cumberland INFIRMARY.—HOUSE SURGEON required (Ladies eligible). Salary £150 per annum, with board, lodging, and attendance. Duties to begin immediately. For further particulars apply to W. H. SANDS (Honorary Secretary), Howgill-street, Whitehaven.

Wanted, Temporary Assistant Medical OFFICER. Salary £6 6s. per week, with apartments, board, attendance, and laundry. Applications, stating age, and with testimonials, to be sent as soon as possible to the Medical Superintendent, SURREY COUNTY ASYLUM, Netherne, Merstham.

Assistant Medical Officer wanted for the ROYAL EDINBURGH ASYLUM, Morningside, Edinburgh. Salary £175, with board and rooms, &c. Previous Asylum experience a recommendation. Apply to the Physician-Superintendent, with copies of testimonials and statement of qualifications.

Corporation of the City of Glasgow.—ASSISTANT TUBERCULOSIS OFFICER.—Applications are invited from registered medical practitioners with hospital experience for a temporary appointment as Assistant Tuberculosis Officer. Salary at the rate of £350 per annum. Applications to be addressed to the Medical Officer of Health, Glasgow. 19th March, 1915.

Crichton Royal, Dumfries.—Wanted, a Temporary ASSISTANT PHYSICIAN during war (man, married, under thirty-five, fully qualified and registered). Salary at the rate of 5 guineas a week, with furnished apartments, board, laundry, and attendance. No deduction from salary for pension purposes. Ample facilities for study and recreation. Well-equipped laboratories and special staff for pathological research. Asylum experience not essential. Appointment terminable on three months' notice. Apply at once in writing, stating age, qualifications, and experience, with copies of testimonials, to Physician-Superintendent, Crichton Royal Mental Hospital, Dumfries.

Warwickshire and Coventry Joint COMMITTEE for TUBERCULOSIS.—DISPENSARY NURSE (Hospital trained) wanted, with experience in Sanatoria and [or] otherwise, to enter upon duty on an early date. Commencing salary £100. Apply, forthwith, to Dr. CLARK, Tuberculosis Officer, Masonic Buildings, Coventry.

Royal Victoria Hospital, Folkestone.—Appointment of MATRON.—There is a vacancy at the above Hospital. Salary £80 to £100 per annum. Applicants should apply at once to the Secretary as above.

Wanted immediately for the Fever Hospital in Serbia. a HEAD PHYSICIAN to take complete charge of Hospital unit. English, French, or Belgian Doctors may apply. Applications should be by letter in the first place, stating qualifications and terms. Address, R. C. HAWKIN, Esq., Hon. Sec., Wounded Allies Relief Committee, Sardinia House, Kingsway, W.C.

Wanted, for a Red Cross Hospital in the South of France (150 beds), a fully qualified young SURGEON, to assist the surgeon in chief in the wards and operating room. Pay 25s. a day less 3s. 2d. for messing and apartments; £10 allowance for uniform. Six months' agreement, renewable.—Write, mentioning two references, to the Hon. Secretary, Ambulance, 2, London Wall Buildings, London, E.C.

R. A. M. C. Territorial Commissions.—A large number of Appointments are now open for Home or Foreign Service. Age limit forty.—Apply personally, if possible, to Transfer Department, Arnold & Sons, Surgical Instrument Manufacturers, 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

Vacancies for Medical Officers in Mail Steamers sailing to East West Coasts South America. Salary and fees.—Apply, P. S. N. C., 31, James-street, Liverpool.

Surgeon wanted for Atlantic Steamer, £20 per month, and for Bombay Steamer, £15 per month.—Write W 982, care of Shelleys, 38, King William-street, E.C.

Ship's Surgeon.—Messrs. Elder Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Steamers call Madeira, Canary Islands, and West African ports. Pay £15 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited, Colonial House, Liverpool.

Several Sea Appointments now vacant. Surgeons with families or friends going abroad will find an immense saving by obtaining their passages through MOORE & CO. All passage booked free of charge. Surgeons as medical officers to ships or for the outward voyage only to the Colonies are obtained through MOORE & CO., the recognised agents to all shipping firms. Established 1840.—Apply to MOORE & CO., Medical Agents, Wholesale Druggists, 125, Houndsditch, E.C. Telegrams: Filiclique, London. Telephone: No. 1235 Avenue.

Locum Tenens supplied by the Scholastic, Clerical, and Medical Association, Limited, 22, Craven-street, Trafalgar-square, W.C. No Locum Tenens is recommended unless personally known or until direct inquiries have been made as to his character and competence.—Telegraphic Address: "Triform," London. Telephone: No. 1854 Gerrard.

Locums and Assistants will find work on applying to Lee & Martin, 93, Hall-road, Handsworth, Birmingham. Telegrams: "Locum, Birmingham."

Locum Tenens provided.
APPLY
ARNOLD & SONS
(Surgical Instrument Manufacturers),
TRANSFER DEPARTMENT,
6, GILTSPUR STREET, LONDON, E.C.
(OPPOSITE ST. BARTHOLOMEW'S HOSPITAL).
Telegrams: "Instruments, London." Telephone: 5240 City.

Locum wanted at once to take charge of Practice until Sale is effected. One with view to purchase preferred.—Apply, Dr. Foster, Dunston-on-Tyne.

Locum Tenens urgently required.—Messrs. ARNOLD and SONS require several reliable gentlemen to complete their staff.—Apply, Transfer Department, 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital). Telephone: 5240 City. Telegrams: "Instruments, London."

Locum Tenens wanted immediately.—Mr. Percival Turner is in immediate want of several reliable Gentlemen with satisfactory credentials to fill vacancies caused by the War and otherwise.—Apply, personally if possible, to Percival Turner, 4, Adam-street, Strand, London, W.C. Telephone 3399 Central.

Locum Tenens wanted whilst Principal is away on active service. Mixed-class Practice with appointments. Four miles from Newcastle-on-Tyne. Terms 9 guineas a week, house (without board), and maid-servant (board provided). First-class references and character essential.—Address, No. 340, THE LANCET Office, 423, Strand, London, W.C.

Wanted at once, an Assistant. £400 per annum and good house, in North London. Full charge of Practice.—Address, No. 337, THE LANCET Office, 423, Strand, W.C.

South Coast Town.—Wanted, an ASSISTANT. Part time. To live in. Duties light. Would suit convalescent. Night work practically nil.—Address, stating salary required, to No. 338, THE LANCET Office, 423, Strand, W.C.

Wanted, early in April, a well-qualified man as LOCUM in a Western Suburb. Terms 8 guineas per week.—Address, No. 341, THE LANCET Office, 423, Strand, W.C.

Federated Malay States.—Wanted by June 1st, an ASSISTANT. Must be Graduate of London, Cambridge, or holder of Conjoint Board of England qualifications. Must be under thirty and preferably married. Salary £350 a month (£480 a year), rising to £600 in second year, and £700 in third year. Agreement for three years, after which a Share in the Partnership would be given if mutually satisfactory. Passage paid by P. & O. Intermediate from London.—Apply in first instance to H. A. Carter, Esq., 36, Bedford-row, W.C.

Medical Man, Russian, aged 40, qualified and registered in this country, desires Professional ENGAGEMENT. Management of Branch preferred. Thoroughly experienced. Total abstainer.—Address, No. 339, THE LANCET Office, 423, Strand, W.C.

Locum Tenens.—No fee to Principals.

—Mr. PERCIVAL TURNER has a large staff of trustworthy Gentlemen acting as Locum Tenentes, and will be happy to send them as required at short notice on application.—Address, 4, Adam-street, Adelphi, London, W.C. Telegrams "Epsomian, London." Telephone: 3399 Central.

Lady Dispenser, qualified, requires

Post with Doctor or Hospital. Experienced.—Address, Miss Cowley, 7, Beach Bank, Waterloo, Liverpool.

Wanted, Engagement as Companion-

ATTENDANT to an invalid gentleman. Last engagement, for over two years, mental case. Excellent references.—Please write, J. W., 7, Milner-square, London, N.

Wanted.—M.D. (Lond.), Gold Medal,

F.R.C.S. (Eng.), late Medical and Surgical Registrar, House Surgeon, &c., wants good PARTNERSHIP or Partnership with early Succession. Must be good class, in good residential town preferred, and with early prospect of hospital appointment.—Address, No. 336, THE LANCET Office, 423, Strand, W.C.

For Disposal.—A really good Practice

is not always to be had directly, but Mr. Percival Turner (with thirty-five years' personal experience) can generally offer applicants something suitable on being furnished with details of their requirements. Nearly all the best Practices are sold by him without being advertised.—Full information free of charge on application, personally or by letter, to 4, Adam-street, Adelphi, Strand, W.C.

For Disposal, Practices or Partner-

SHIPS.—Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers, have been instructed to privately dispose of a large number of really good Practices and Partnerships. Gentlemen are requested to state their requirements and amount of capital available. No charge to purchasers.—Address, Arnold & Sons, Transfer Department, 6, Giltspur-street, London, E.C. (opposite St. Bartholomew's Hospital).

Practices and Partnerships.—When

purchasing either the importance of a careful investigation of the Vendor's books should be borne in mind. Messrs. LEE & MARTIN, of 93, Hall-road, Handsworth, Birmingham, have a Department specially for this work, and only Chartered Accountants are employed. Charges moderate and efficiency guaranteed.

London Suburb.—Nearly £1000 a

year.—Increasing General PRACTICE in a pleasant residential outlying S.W. suburb. Fees for visits 2s. to 5s.; Midwifery 1 to 2 guineas. Panel over 1500. Nice house, with garden; rent £42. Ample scope. Premium £1000. Illness necessitates sale.—Apply, No. 5734, care of Mr. Percival Turner, 4, Adam-street, Strand, W.C.

Lancs. Town.—Old-established Prac-

TICE for Sale in busy district. Good house; rent £40. Receipts about £600. Panel about 650. Introduction as desired. Price to prompt buyer £275.—Manchester Clerical, Medical, & Scholastic Association, Ltd., 8, King-street.

Panel and Cash Practice.—£1400 a

year.—ONE-THIRD SHARE for Sale by instalments. Panel 2200 at 7s.—Apply, No. 5739, care of Percival Turner, 4, Adam-street, Strand, W.C.

Staffordshire.—Middle- and Working-

class PRACTICE, £1225. Panel 1600. Transferable appointments. Introduction. Premium £1200.—Lee & Martin, 93, Hall-road, Handsworth, Birmingham.

Sale.—Sussex, near Coast, Practice

of £400 and more, inclusive Panel and public appointments, £180, easily transferable. To an immediate purchaser, £150. Easy terms. Vendor going abroad.—Address, No. 329, THE LANCET Office, 423, Strand, W.C.

Death Vacancy.—Kent.—Very old-

established high-class PRACTICE, including appointments, in a beautiful Residential District. Receipts, say, £1600 per annum, much of which is derived from county families. An exceptional opportunity.—J. A. Reaside, Watergate House, Adelphi, W.C.

£1000 a year.—Unopposed, very

old-established Country PRACTICE in pleasant district in Eastern County. Same hands thirty-five years. Good house; rent £30; seven bedrooms, small garden. Nearly 1000 on panel at 9s. Hunting, shooting, &c. Premium only £1000.—(No. 5714), care of Mr. Percival Turner, 4, Adam-street, Strand, W.C.

For Sale, High-class Country Con-

VALESCENT HOME. Going concern. Suitable for two classes of patients. Large grounds. Easy distance from London. Low price for quick sale.—Address, "Chalklands," care of J. W. Vickers & Co., Ltd., 5, Nicholas-lane, E.C.

To Purchasers.—Do not buy any

Practice or Partnership without an investigation into books and other inquiries by an expert specially competent to conduct the same. Thirty-six years' personal attention to such inquiries has given Mr. PERCIVAL TURNER an unique ability to advise in all cases. Terms and full particulars free on application to 4, Adam-street, Strand, London, W.C. Telephone: 3399 Central. Telegrams: Epsomian, London.

Lee & Martin, of 93, Hall-road,

Handsworth, Birmingham, have several PRACTICES in various parts of the Country for Sale at reasonable prices.

Nottinghamshire.—Unopposed Prac-

TICE of nearly £700 a year in Agricultural District on line of rail. No opponent for six miles. Panel nearly 500 at 9s. Good house, tennis-lawn, and garden; rent £45. Easily worked. Cycle sufficient. Personally known and recommended.—(No. 5614), care of Mr. Percival Turner, 4, Adam-street, Strand, London, W.C.

London (East).—Old-established

Working-class PRACTICE. £1600. Introduction. Premium £1250, part down, balance out of Panel.—Lee & Martin, 93, Hall-road, Handsworth, Birmingham.

£1700 a year.—London Suburb.—

Middle-class Non-panel PRACTICE in pleasant Northern Suburb. Visits 2s. 6d. to 7s. 6d. No appointments taken. Dispenser kept. Ill-health necessitates sale. Partnership introduction. Premium only £1200, part can remain.—(No. 5733), care of Mr. Percival Turner, 4, Adam-street, Strand, London, W.C.

Staffordshire.—Private Middle-class

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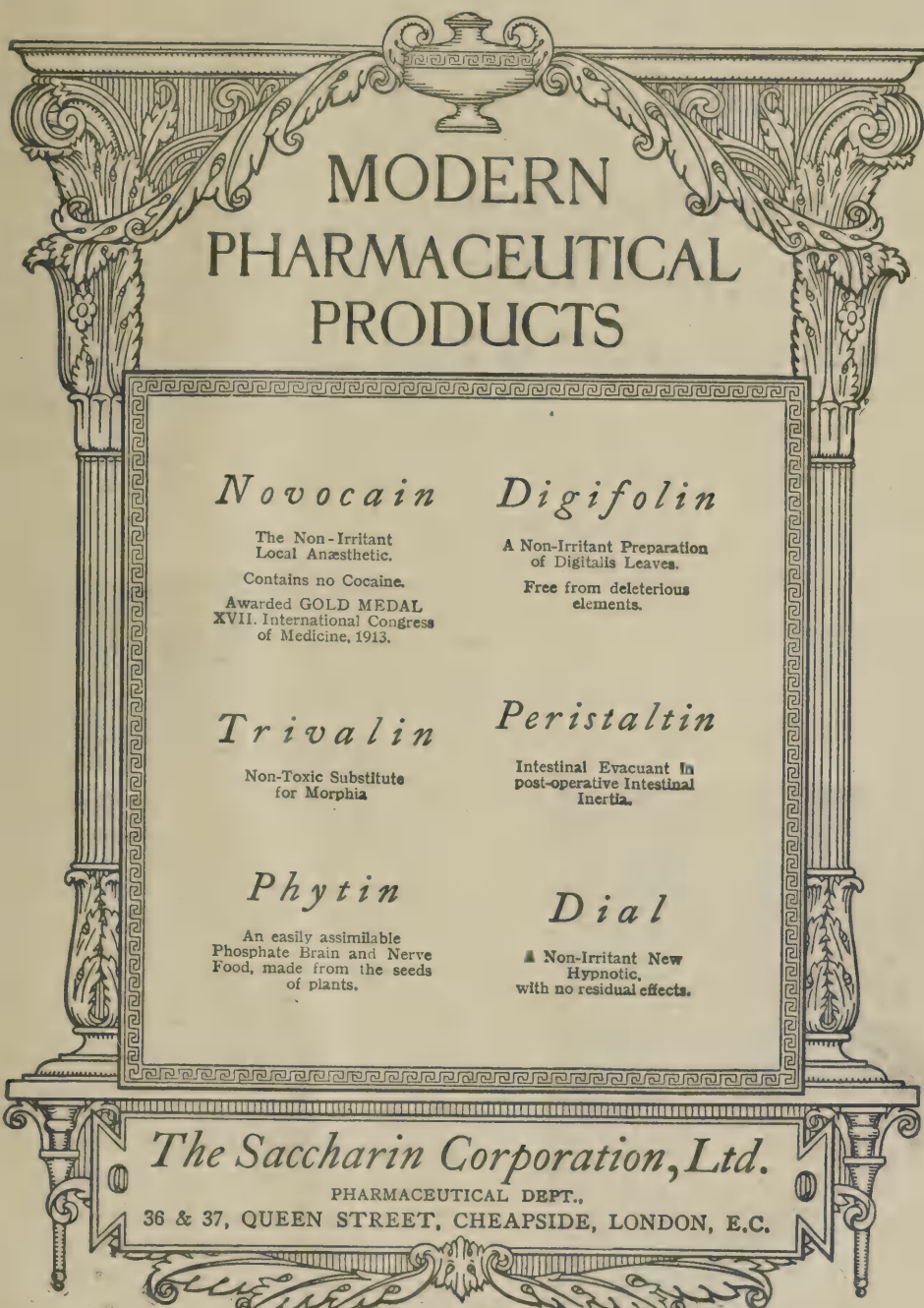
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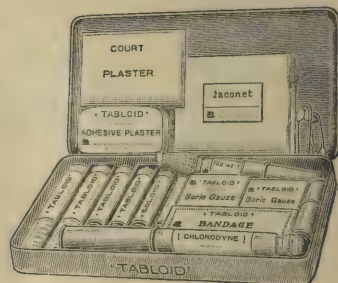
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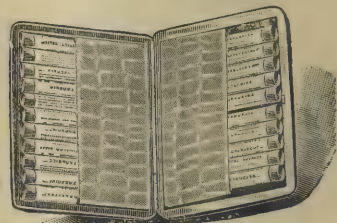
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